

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.





A9111
F7640b
United States
Department
of Agriculture

CATT STR

Forest Service

Intermountain
Research Station

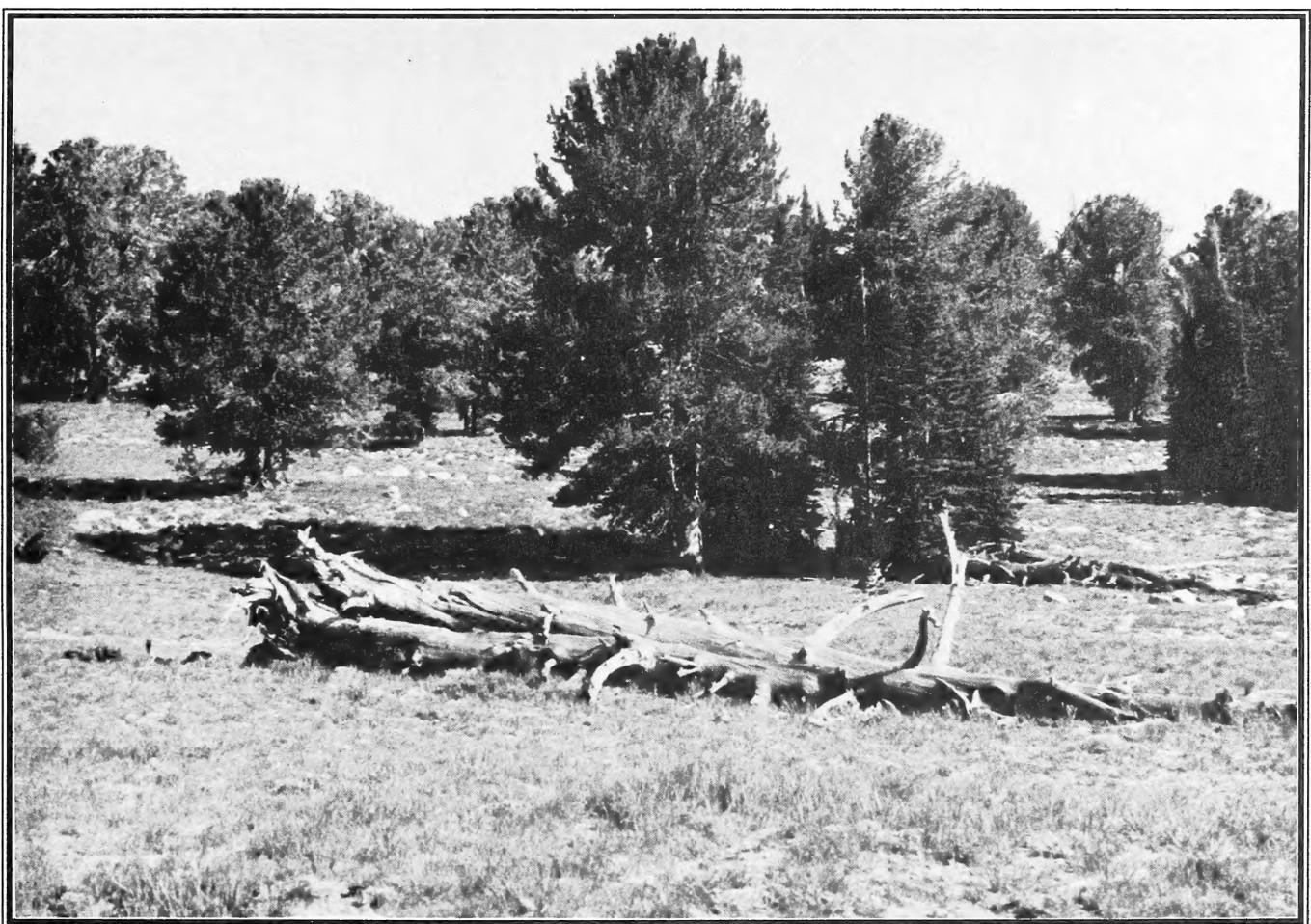
Resource Bulletin
INT-RB-82

May 1995



Southern Idaho's Forest Land Outside National Forests, 1991

David C. Chojnacky



The Author

David C. Chojnacky is a research forester in the Interior West Resource Inventory, Monitoring, and Evaluation Program at the Intermountain Research Station in Ogden, UT 84401. His phone number is (801) 625-5402. He holds a Ph.D. degree in forest biometry from Colorado State University.

Research Summary

This report presents 59 summary tables for land outside National Forests in southern Idaho inventoried in 1991. The tables show forest land area, tree numbers, wood volume and growth, and tree mortality organized by ownership, stand, and tree classification variables. The report also explains inventory terminology, overviews inventory design, and discusses data reliability.

Results show over 2 million acres of forest land outside National Forests in southern Idaho. Two-thirds of this area is covered by timberland forest types, and one-third is covered by woodland types. More than half is administered by government agencies. Net volume on the timberland is about 1.8 billion cubic feet of wood. Douglas-fir, ponderosa pine, and aspen forest types account for most of the timberland volume. Junipers dominate the 0.4 billion cubic feet of woodland volume. For timberland, the annual volume growth is about 54 million cubic feet (40 cubic feet/acre/year), but the annual tree mortality is almost 22 million cubic feet, which reduces net annual growth to 32 million cubic feet (24 cubic feet/acre/year). Net annual growth for woodland is almost 3 million cubic feet (4 cubic feet/acre/year).

Preface

Statewide forest inventories are part of an ongoing, nationwide effort of the Forest Service, U.S. Department of Agriculture, to assess the Nation's forest lands. Forest Inventory and Analysis (FIA), a subgroup within Forest Service Research, is responsible for this task. It uses periodic, State-by-State, sample-based inventories. FIA was initially authorized by the McSweeney-McNary Act of 1928. The current authorization is through the Renewable Resources Research Act of 1978.

In the Western States of Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, and Wyoming, FIA inventories are conducted by the Interior West Resource Inventory, Monitoring, and Evaluation Program at the Intermountain Research Station in Ogden, UT. These inventories provide data on land area and wood volume that can be classified for many resource uses. The inventories cover State, privately owned, and most other forest lands not in the National Forest System. These data, when combined with similar information on National Forest lands, provide an extensive data base for forest lands.

Acknowledgments

The author gratefully acknowledges the cooperation and assistance from State Forester, Stanley Hamilton and other Idaho Department of Lands personnel; the Bureaus of Land Management and Indian Affairs, U.S. Department of the Interior; and the Intermountain Region, Forest Service, U.S. Department of Agriculture. I also appreciate the assistance provided by Joe Hinson, Intermountain Forest Industry Association. I extend a special note of thanks to the private landowners who provided information and access to field sample plots.

About the cover: Whitebark pine in South Fork,
Boise River drainage in Camas County, Idaho.

Contents	Page	Page
Introduction	1	
Inventory Terminology and Concepts	1	
Overview of Tables	2	
Southern Idaho Land Area	6	
Timberland	6	
Woodland	7	
Other Information	7	
Highlights of Inventory Results	8	
Area	8	
Stand Composition and Volume	9	
Growth and Mortality	10	
Inventory Design	12	
Data Reliability	12	
Standard Forest Inventory and Analysis Terminology	13	
References	18	
Forest Inventory and Analysis Tables		
1. Total area by ownership class and land class in southern Idaho, 1991	20	
2. Area of forest land outside National Forests with percent standard error in southern Idaho, 1991	21	
3. Net volume, net annual growth, and annual mortality of growing stock and sawtimber on timberland outside National Forests with percent standard error in southern Idaho	21	
4. Total land area outside National Forests by major land class and owner group in southern Idaho, 1991	21	
Timberland Tables		
Area		
5. Area of timberland outside National Forests by forest type, stand-size class, and productivity class in southern Idaho, 1991	22	
6. Area of other publicly owned timberland by forest type, stand-size class, and productivity class in southern Idaho, 1991	23	
7. Area of forest industry owned timberland by forest type, stand-size class, and productivity class in southern Idaho, 1991	24	
8. Area of nonindustrial private timberland by forest type, stand-size class, and productivity class in southern Idaho, 1991	25	
9. Area of timberland outside National Forests by stand volume and owner group in southern Idaho, 1991	26	
10. Area of timberland outside National Forests by forest type and stocking condition in southern Idaho, 1991	26	
Number of Trees		
11. Number of growing-stock trees on timberland outside National Forests by species and diameter class in southern Idaho, 1991	27	
12. Number of cull and salvable dead trees on timberland outside National Forests by owner group, and softwoods and hardwoods in southern Idaho, 1991	28	
Volume		
13. Net volume of growing stock on timberland outside National Forests by forest type and stand-size class in southern Idaho, 1991	29	
14. Net volume of sawtimber (International $\frac{1}{4}$ -inch rule) on timberland outside National Forests by forest type and stand-size class in southern Idaho, 1991	29	
15. Net volume of sawtimber (Scribner rule) on timberland outside National Forests by forest type and stand-size class in southern Idaho, 1991	30	
16. Net volume of growing stock on timberland outside National Forests by species and owner group in southern Idaho, 1991	30	
17. Net volume of sawtimber (International $\frac{1}{4}$ -inch rule) on timberland outside National Forests by species and owner group in southern Idaho, 1991	31	
18. Net volume of sawtimber (Scribner rule) on timberland outside National Forests by species and owner group in southern Idaho, 1991	31	
19. Net volume of growing stock on timberland outside National Forests by species and diameter class in southern Idaho, 1991	32	
20. Net volume of sawtimber (International $\frac{1}{4}$ -inch rule) on timberland outside National Forests by species and diameter class in southern Idaho, 1991	33	
21. Net volume of sawtimber (Scribner rule) on timberland outside National Forests by species and diameter class in southern Idaho, 1991	34	

	Page		Page
22. Net volume of timber on timberland outside National Forests by class of timber, and softwoods and hardwoods in southern Idaho, 1991	35	33. Annual mortality of sawtimber (International $\frac{1}{4}$ -inch rule) on timberland outside National Forests by species and owner group in southern Idaho, 1990	41
23. Net volume of growing stock on timberland outside National Forests by forest type and species in southern Idaho, 1991	35	34. Annual mortality of sawtimber (Scribner rule) on timberland outside National Forests by species and owner group in southern Idaho, 1990	42
24. Net volume of sawtimber (International $\frac{1}{4}$ -inch rule) on timberland outside National Forests by forest type and species in southern Idaho, 1991	36	35. Annual mortality of growing stock on timberland outside National Forests by species and diameter class in southern Idaho, 1990	43
25. Net volume of sawtimber (Scribner rule) on timberland outside National Forests by forest type and species in southern Idaho, 1991	36	36. Annual mortality of sawtimber (International $\frac{1}{4}$ -inch rule) on timberland outside National Forests by species and diameter class in southern Idaho, 1990	44
Growth		37. Annual mortality of sawtimber (Scribner rule) on timberland outside National Forests by species and diameter class in southern Idaho, 1990	44
26. Net annual growth of growing stock on timberland outside National Forests by species and owner group in southern Idaho, 1990	37	38. Annual mortality of growing stock on timberland outside National Forests by species and cause of death in southern Idaho, 1990	45
27. Net annual growth of sawtimber (International $\frac{1}{4}$ -inch rule) on timberland outside National Forests by species and owner group in southern Idaho, 1990	37	39. Annual mortality of sawtimber (International $\frac{1}{4}$ -inch rule) on timberland outside National Forests by species and cause of death in southern Idaho, 1990	45
28. Net annual growth of sawtimber (Scribner rule) on timberland outside National Forests by species and owner group in southern Idaho, 1990	38	40. Annual mortality of sawtimber (Scribner rule) on timberland outside National Forests by species and cause of death in southern Idaho, 1990	46
29. Net annual growth of growing stock on timberland outside National Forests by species and diameter class in southern Idaho, 1990	39	County Tables	
30. Net annual growth of sawtimber (International $\frac{1}{4}$ -inch rule) on timberland outside National Forests by species and diameter class in southern Idaho, 1990	39		
31. Net annual growth of sawtimber (Scribner rule) on timberland outside National Forests by species and diameter class in southern Idaho, 1990	40	41. Area of timberland outside National Forests by county in southern Idaho, 1991	47
Mortality		42. Net volume of growing stock and sawtimber on timberland outside National Forests by county in southern Idaho, 1991	48
32. Annual mortality of growing stock on timberland outside National Forests by species and owner group in southern Idaho, 1990	41	43. Net annual growth of growing stock and sawtimber on timberland outside National Forests by county in southern Idaho, 1990	49

	Page
44. Annual mortality of growing stock and sawtimber on timberland outside National Forests by county in southern Idaho, 1990	50
Miscellaneous Tables	
45. Area of timberland outside National Forests by burn history and owner group in southern Idaho, 1991	51
46. Area of timberland outside National Forests by cutting history and owner group in southern Idaho, 1991	51
47. Area of timberland outside National Forests by distance to road and owner group in southern Idaho, 1991	52
48. Net volume of growing stock on timberland outside National Forests by distance to road and owner group in southern Idaho, 1991	52
Marketing Zone Tables	
49. Area of timberland outside National Forests by marketing zone and owner group in southern Idaho, 1991	53
50. Net volume of growing stock and sawtimber on timberland outside National Forests by marketing zone and owner group in southern Idaho, 1991	53
51. Net annual growth of growing stock and sawtimber on timberland outside National Forests by marketing zone and owner group in southern Idaho, 1990	54
52. Annual mortality of growing stock and sawtimber on timberland outside National Forests by marketing zone and owner group in southern Idaho, 1990	54
Woodland Tables	
53. Area of woodland outside National Forests by forest type and owner group in southern Idaho, 1991	55
54. Net volume on woodland outside National Forests by forest type and owner group in southern Idaho, 1991	55
55. Net volume on woodland outside National Forests by species and owner group in southern Idaho, 1991	56
56. Net annual growth on woodland outside National Forests by forest type and owner group in southern Idaho, 1990	56
57. Net annual growth on woodland outside National Forests by species and owner group in southern Idaho, 1990	56
58. Annual mortality on woodland outside National Forests by forest type and owner group in southern Idaho, 1990	57
59. Annual mortality on woodland outside National Forests by species and owner group in southern Idaho, 1990	57

Southern Idaho's Forest Land Outside National Forests, 1991

David C. Chojnacky

Introduction

This report presents 59 summary tables of forest statistics for land in southern Idaho outside National Forests. The tables show forest land area, tree numbers, wood volume and growth, and tree mortality organized by ownership, stand, and tree classification variables. These estimates are derived from summarization of 292 field plots and over 100,000 photo points using a two-phase sample design (fig. 1). Of the 292 field plots, 91 were remeasurements of plots established in 1981. The sampling was done in 1991 by the U.S. Department of Agriculture, Forest Service, Intermountain Research Station, Forest Inventory and Analysis (FIA) unit located in Ogden, UT.

Besides presenting detailed tables, this report briefly explains key FIA terminology, overviews the table formats, highlights some results, and discusses inventory design and data reliability.

Inventory Terminology and Concepts

A standard glossary of FIA terminology appears at the end of this report, but some main concepts helpful to understanding the tables are discussed here.

An FIA inventory includes the entire land area of a State (outside National Forests) and then is reported by subdivisions (sample areas or survey units), in this case southern Idaho. Land area is divided into forest and nonforest (fig. 2). Nonforest includes range, agriculture, and urban lands. Nonforest

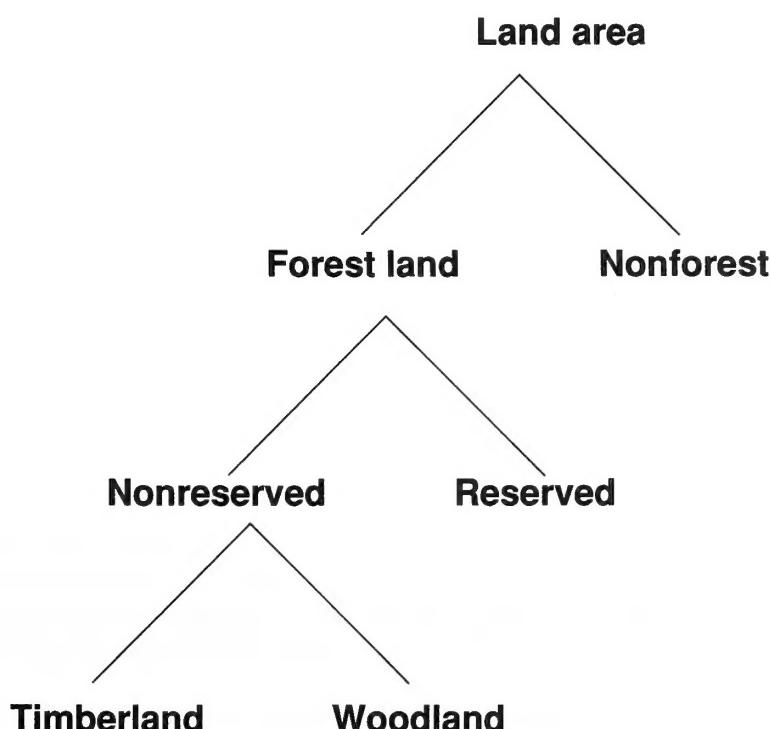


Figure 2—Forest Inventory and Analysis land classification.

is not necessarily devoid of tree cover, as land use precludes tree cover in this division. Forest land is classified into land "reserved" from tree utilization and "nonreserved" land available for tree utilization. Forest land found in wilderness areas (those designated by Congress) and National Parks are examples of reserved lands.

Nonreserved forest lands are subdivided into timberland and woodland (fig. 3). Timberland includes forests of tree species traditionally used in the forest products industry. Woodland includes the shrubby tree species not traditionally used for industrial wood products. Juniper (*Juniperus* sp.), mountain-mahogany (*Cercocarpus ledifolius*), and pinyon (*Pinus monophylla*) are typical woodland species found in Idaho. This report focuses on non-reserved timberland and woodland.

An FIA inventory primarily produces tables of forest land area, numbers of trees, wood volume and growth, and tree mortality. Most of the tables focus on trees larger than saplings. Featured in many tables are growing-stock trees, which are trees having cubic-foot volume defect or loss less than two-thirds of the total volume. Nongrowing-stock trees have more than two-thirds volume loss and are called cull trees in this report.

The statistical tables of inventory information are grouped in two general ways. Tree data are either separated by species and diameter at breast height (d.b.h.) for grouping across many plots, or data are grouped at the plot level to represent stand information. Terms such as forest type, stand-size class, and productivity class are used to delineate detail of the stand groupings. Forest type designates the primary species found in a stand. For timberland, stand-size class classifies the stand into its predominant d.b.h. size—sawtimber, poletimber, sapling, or seedling.

Both forest type and stand-size class are based on calculations that rely heavily on tree-stocking algorithms that measure how well a site is being utilized by trees (Hansen and Hahn 1992). Because stocking algorithms are difficult to explain, it is helpful to visualize stocking as relating to basal area (fig. 4).

Productivity class, another timberland stand classification in the tables, is calculated from yield capability equations using data from height/age site index trees (Brickell 1970). The site index trees are purposely selected on or near the field plots to represent growth potential for the site. The yield capability equations predict mean annual wood volume growth corresponding to fully stocked natural stands at the age where mean annual growth is maximum.

The terminology used in the woodland tables is similar to that used in the timberland tables, but fewer computations or algorithms are used. Instead, most of the woodland concepts and classifications are either described in the field where possible (as for forest type) or omitted from this report where methodology is lacking (as for productivity class).

Overview of Tables

Land areas, wood volumes (both live and dead), and number of trees are the main statistics tabulated. Except for some land area highlights and sampling errors (tables 1-4), the tables are separated into timberland (tables 5-52), and woodland (tables 53-59). A general description of the tables is given here.

- ▲ Timberland field plot (209)
- Woodland field plot (83)
- Timberland photo point (5,515)
- Woodland photo point (3,236)
- Non-sampled National Forest

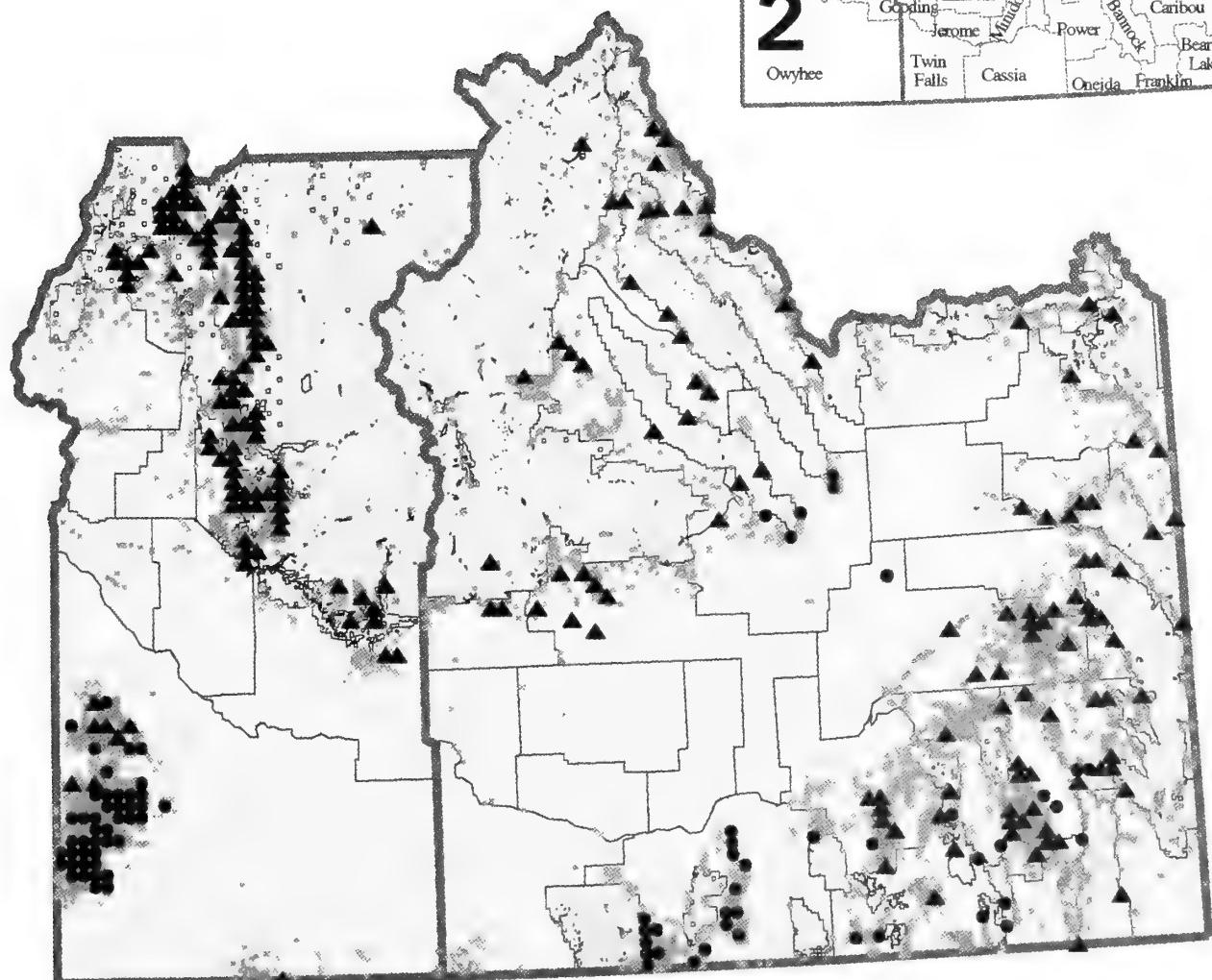


Figure 1—(A) The inventory design for southern Idaho's sample areas (also marketing zones) 2 and 3. Only the phase I photo points classified as timberland, woodland, or water are shown. The phase II field plots are grouped as timberland and woodland.

Forest Type

- ▲ Douglas-fir (86)
- ▲ Ponderosa pine (35)
- ▲ Aspen (41)
- ▲ Other timberland (47)
- Juniper (66)
- Other woodland (17)
- National Forest
- Water

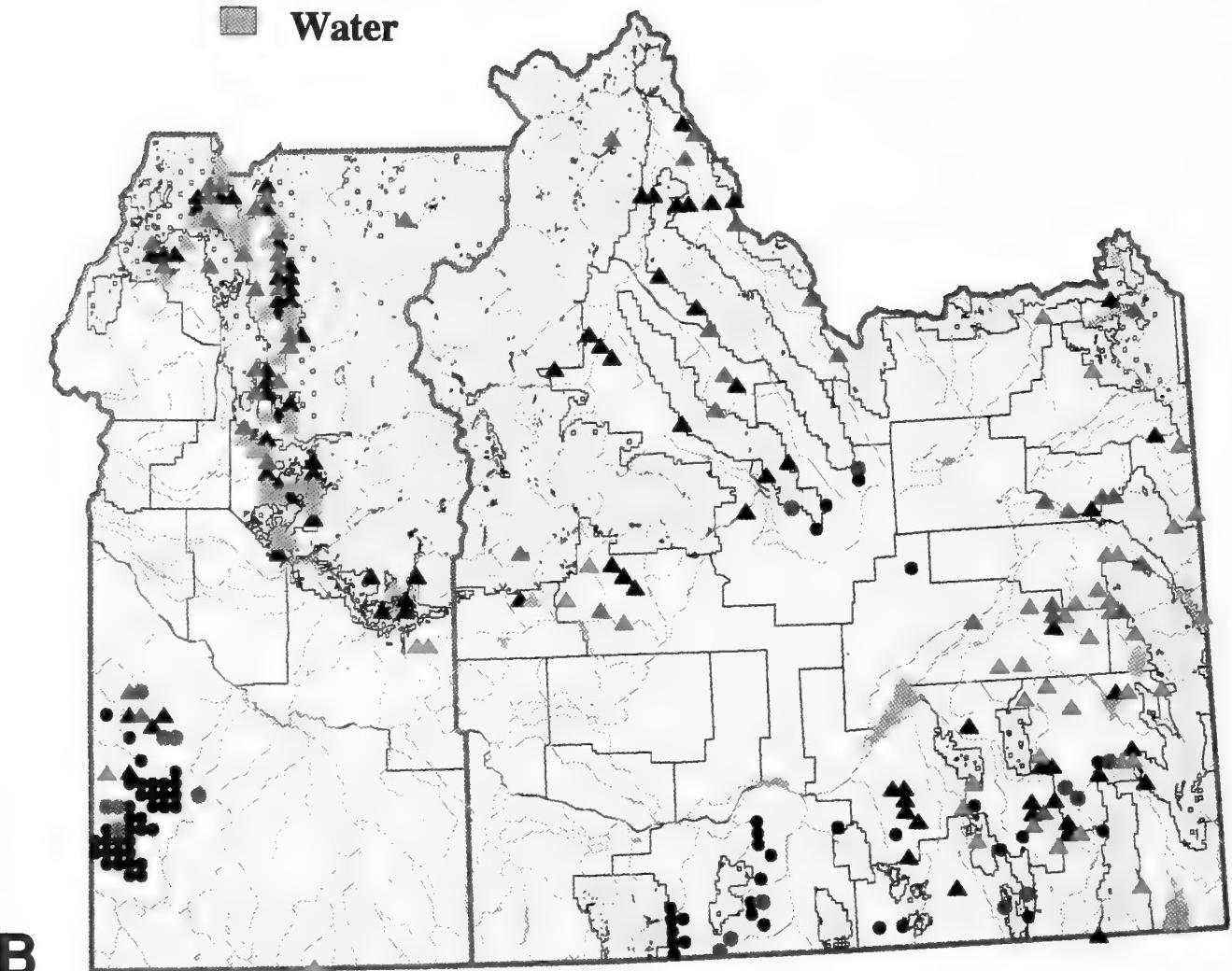


Figure 1—(B) The phase II field plots are identified by forest type.



Figure 3—Douglas-fir timberland site (A) recently logged near the South Fork of Boise River, and a Utah juniper woodland site (B) bordering farm land near the Idaho/Utah State boundary.

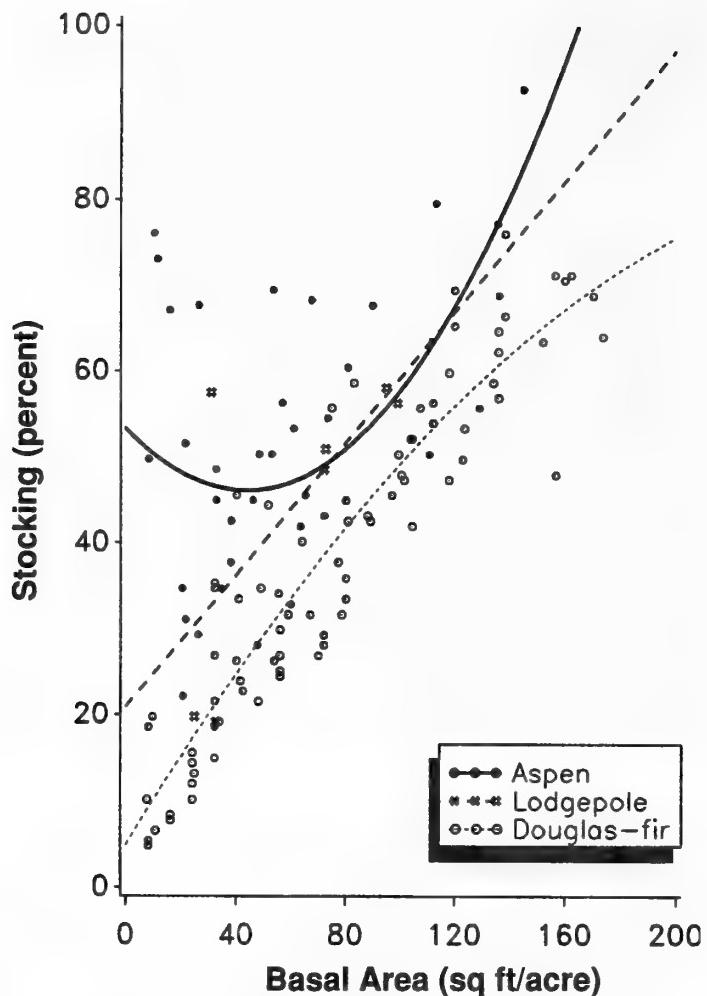


Figure 4—The relationship between stocking (predicted from an algorithm) and basal area for aspen, lodgepole, and Douglas-fir forest types in southern Idaho.

Southern Idaho Land Area

Land ownership is a primary classification category in tables 1 and 4. Categories include private land ownerships and public lands administered by the Bureau of Land Management (BLM), U.S. Department of the Interior, other Federal agencies, the State of Idaho, and county and municipal governments. Areas “reserved” from timber production are not field sampled. However, acreage estimates derived from photo points for reserved areas are included in table 1. Area estimates of lands in the National Forest System (NFS) administered by the Forest Service, U.S. Department of Agriculture, are also included in table 1. But NFS forest statistics are not presented in this report. A future statewide analysis of Idaho forests will combine information in this report with data from northern Idaho (Wilson and Van Hooser 1993) and data from Idaho National Forests.

Timberland

Timberland area (tables 5-10) is summarized by ownership and by several stand classifications. The tables show the timbered area outside National Forests by forest type, productivity class, volume class, and stocking condition.

Numbers of trees are tabled by size and species (table 11). Information on cull and dead trees is grouped into softwoods and hardwoods (table 12).

Wood volume is a major emphasis of the inventory (tables 13-25). Volume is not measured, but is predicted for individual trees from equations using d.b.h. and total height measurements (Edminster and others 1977; Kemp 1958; Moisen and Chojnacky, in press). Volume is estimated in cubic-feet and in board-feet according to Scribner and International $\frac{1}{4}$ -inch rules. A "net" volume is the value reported in the tables. This is gross volume (predicted from volume equations) reduced by a factor depending mainly upon d.b.h. and species.

For southern Idaho, most of the net volume reduction factors are taken from data for the Nez Perce National Forest. For most southern Idaho species, gross cubic-foot volume per tree is reduced 5 percent or less to obtain net volume. Cottonwood (*Populus* sp.) has the largest reduction at about 20 percent of gross volume. Board-foot reductions are 10 percent or less per tree for many species, but aspen (*Populus tremuloides*), cottonwood, grand fir (*Abies grandis*), and subalpine fir (*A. lasiocarpa*) are reduced by as much as 20 to 30 percent.

Tree growth is expressed as net annual volume growth (tables 26-31). Volume growth is based on the difference between volumes at two points in time. The volume differences are calculated from growth rates of d.b.h. and height. For southern Idaho data, height growth is predicted using equations taken from the Prognosis Model (Wykoff and others 1982). Diameter growth is either the difference between 10-year d.b.h. measurements for the 91 remeasured plots or is estimated from a subsample of increment cores for the other 201 plots.

Annual mortality is reported in net volume (tables 32-40). This was determined from measurements of trees that have died since the 1981 inventory on the 91 remeasured plots. On the other 201 plots, mortality trees were visually identified as those dead trees that apparently died within the past 5 years.

Several additional tables show some interesting area and volume classifications for southern Idaho (tables 41-52). Classification variables include counties, marketing zones, distance of the inventory plots to roads, field-observed burn history, and field-observed logging history.

Woodland

The remaining tables (53-59) report woodland information. Because only timberland field plots were inventoried in 1991, most of the woodland data in these tables is based on field measurements taken during the 1981 inventory. However, these measurements were weighted by photo points sampled for woodland in 1990, so the total area figures represent 1991 conditions. But classifications of this area, which are dependent upon field data (such as forest type), represent 1981 conditions.

Volume is the main variable. As with the timberland tables, volume estimation required equations (Chojnacky 1985). Growth and mortality were estimated in similar fashion to newly established timberland plots.

Other Information

Over 70 other variables that are collected or calculated in the inventory could be used to categorize forest statistics. These are available upon request.

Many of the tables in this report could be combined with similar tables for northern Idaho (Wilson and Van Hooser 1993), and then used to compare to Benson and others (1987) description of Idaho's forest in 1981. However, direct comparison is complicated by some procedural and definition changes.

Highlights of Inventory Results Area

For example, 1981 data from Idaho Department of Lands and BLM (timberland only) were obtained from these agencies. But in 1991, these lands were field sampled by FIA independent of the design used by the other agencies in 1981. Another change in a species designation affects woodland and timberland comparisons. In 1981, paper birch (*Betula papyrifera*) was classified as a woodland species but was changed to a timberland species in 1991.

The 34 counties in southern Idaho cover 39.8 million acres. Of this total, 69 percent is in public ownership; the Forest Service and the Bureau of Land Management administer most of it (table 1).

Excluding National Forests, about 2 million acres, or 8 percent of southern Idaho is forested (table 4). Less than 1 percent of this forest land is reserved from wood harvest.

Because the inventory did not include National Forests, the highlights focus on the 2 million acres of nonreserved forest land that are mostly BLM, State, or private lands (fig. 5). Of this amount, 1.3 million acres are timberland, and 0.7 million acres are woodland (table 4).

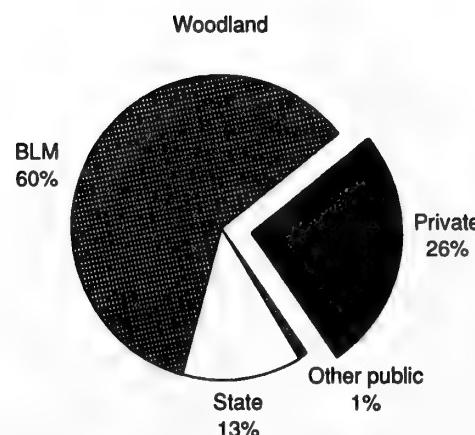
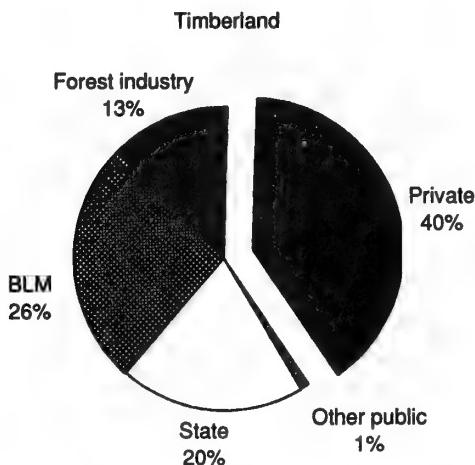


Figure 5—Forest land ownerships outside National Forests in southern Idaho, 1991.

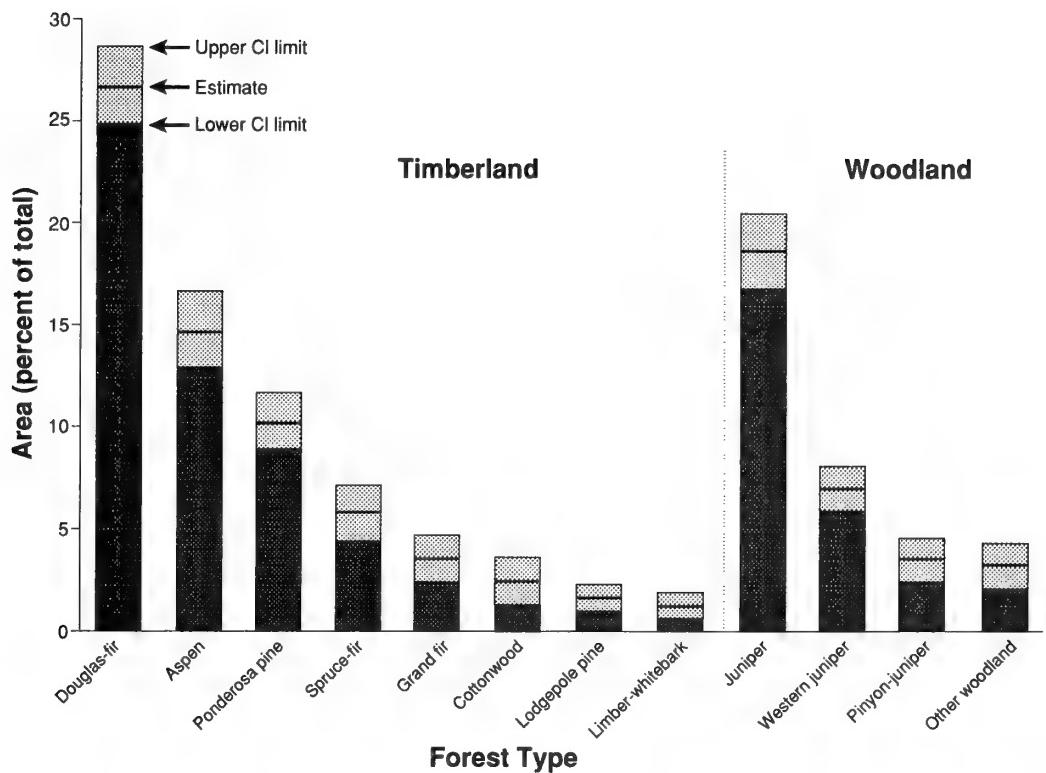


Figure 6—Area of forest land outside National Forests by forest type in southern Idaho, 1991. Uncertainty is shown as a confidence interval (CI) at the 67 percent level. The estimate for a particular forest type is the horizontal line midway between the two confidence-interval limits; it is not the top of the solid bar.

Douglas-fir, aspen, and ponderosa pine are the predominant forest types (fig. 1 and 6) among timberland types (table 5). The juniper forest types account for most of the woodland area (table 53).

Almost two-thirds of the timberland area is classified as sawtimber stands. All of the timberland types have the potential to produce more than 20 cubic feet per acre of wood on an annual basis. But less than 4 percent can produce more than 120 cubic feet per acre per year (table 5).

Over one-half of the timberland stands have less than 5,000 board feet per acre. About one-fourth contain more than 10,000 board feet per acre (table 9).

Stand Composition and Volume

More than 300 million timberland growing-stock trees are found in southern Idaho outside NFS lands (table 11). Averaged over total nonreserved timberland (table 1), this amounts to about 232 trees per acre. Although approximately two-thirds of the stands are classified sawtimber (table 5), more than half of the trees are saplings between 1.0 and 5.0 inches d.b.h., and only 17 percent are sawtimber trees. Besides growing-stock trees, timberland stands contain more than 8 million cull trees and another 21 million dead (standing or downed) trees determined to be usable for wood products (table 12).

Only 14 percent of the timberland area is fully stocked (growing space completely utilized) by stands of timber. More than one-third of the timberland area is in a poorly stocked or nonstocked condition (table 10).

Growing-stock volume on timberland is 1.8 billion cubic feet (table 13). This is about 1,356 cubic feet per acre averaged over the 1.3 million acres of timberland. Rough and rotten cull trees and salvable dead trees add another 135 million cubic feet (table 22). About 46 percent of the volume is distributed among trees between 9 and 17 inches d.b.h. Trees 5 to 9 inches d.b.h. and large sawtimber trees (17 inches d.b.h. and larger) account for 16 and 38 percent of the volume, respectively (table 19). Almost half of the timberland volume is Douglas-fir (*Pseudotsuga menziesii*) (fig. 7).

Woodland trees total more than 100 million and average 210 trees per acre. Woodland net volume is 353 million cubic feet (table 54). On average, this is about 541 cubic feet of volume per woodland acre. Junipers account for most of the volume (fig. 7).

Growth and Mortality

Gross annual growth (net growth plus mortality) on timberland totaled 54 million cubic feet in 1990 (tables 29 and 35), but mortality reduced the net gain to 32 million. Douglas-fir and ponderosa pine (*Pinus ponderosa*) account for most of the net growth (fig. 8). On average, the net annual growth is 24 cubic feet per acre. This is much less than average annual potential productivity—68 cubic feet per acre (table 5).

Aspen and Douglas-fir accounts for most of the mortality (fig. 9). Almost 40 percent of the mortality is related to disease (table 38).

Woodland growth totals about 3 million cubic feet (table 56), but mortality is negligible (table 59). On average, annual woodland growth is 4 cubic feet per acre.

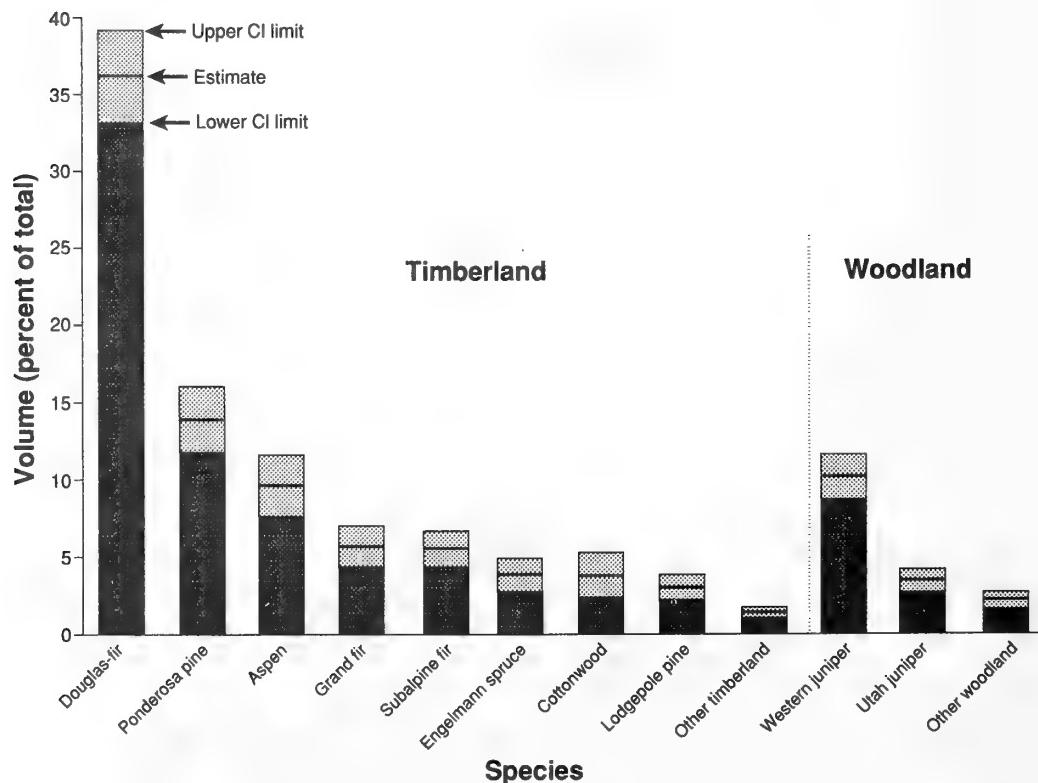


Figure 7—Wood volume outside National Forests by species in southern Idaho, 1991. Uncertainty is shown as a confidence interval (CI) at the 67 percent level. The estimate for a particular species is the horizontal line midway between the two confidence-interval limits; it is not the top of the solid bar.

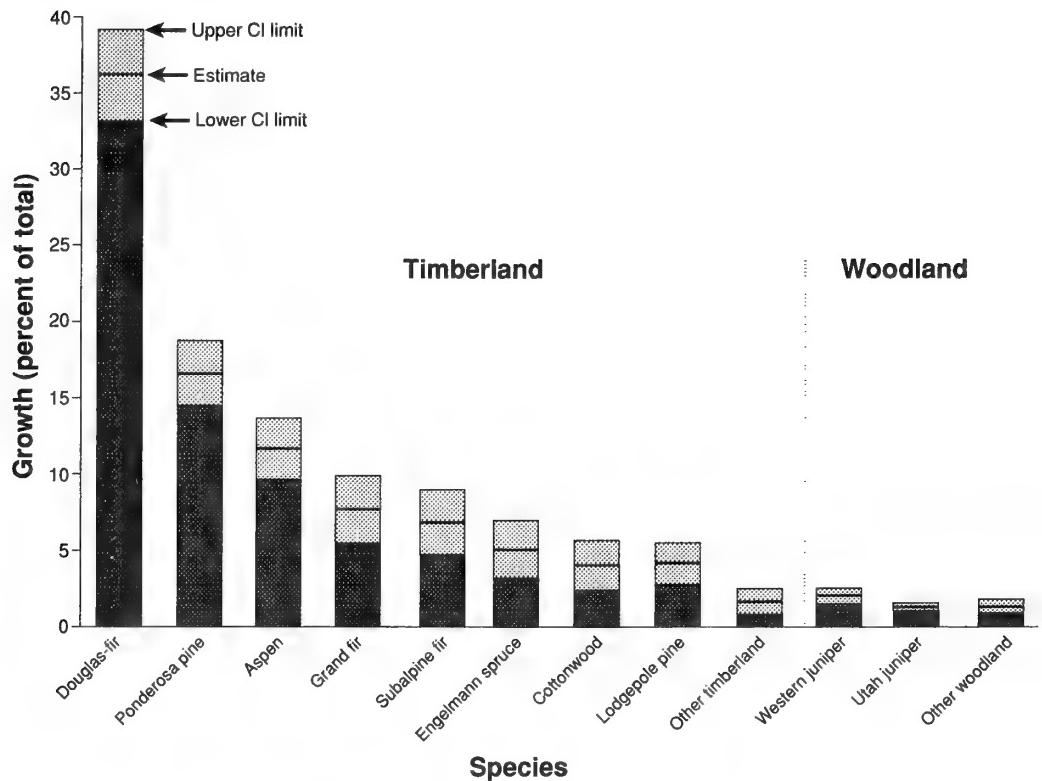


Figure 8—Annual volume growth outside National Forests by species in southern Idaho, 1991. Uncertainty is shown as a confidence interval (CI) at the 67 percent level. The estimate for a particular species is the horizontal line midway between the two confidence-interval limits; it is not the top of the solid bar.

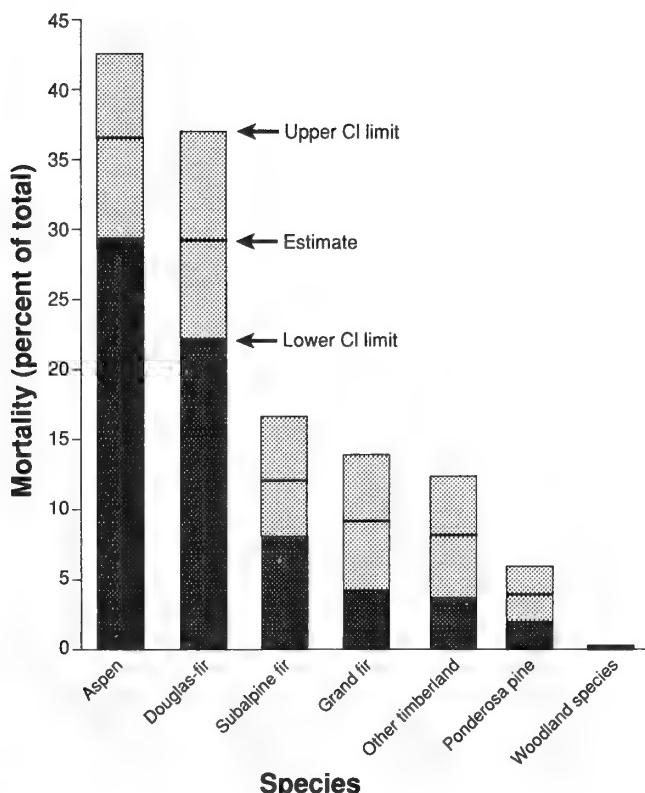


Figure 9—Annual volume mortality outside National Forests by species in southern Idaho, 1991. Uncertainty is shown as a confidence interval (CI) at the 67 percent level. The estimate for a particular species is the horizontal line midway between the two confidence-interval limits; it is not the top of the solid bar.

Inventory Design

Fundamental to an Interior West FIA inventory design is placement of a grid of points over maps of the land area of a State. This grid is then sampled in two phases. By considering the landscape as randomly distributed with respect to the sample grids, random sampling theory is used.

The grid sampling for southern Idaho was done in two sample areas (fig. 1). Grid points within each sample area were divided into 12 or 15 strata, depending on county boundaries, ownership groupings, timberland, woodland, nonforest, or water classification.

Grid spacing of the first phase was 1,000 m. For southern Idaho, land ownership and forest land categories were determined in 1990 for 110,238 map points from the most recent land status maps and aerial photographs.

The second phase is a 4 percent subsample of the first phase points on a grid spacing of 5,000 m. There were 4,251 points of which 292 were eventually field sampled as forest land (fig. 1). Of the 292 field plots, 116 were newly established in 1991; 91 were remeasurements of plots established in 1981; and the remaining 85 were old data reused from the 1981 inventory. Timberland was found on 209 plots, and woodland accounted for 83 plots.

Two of the 85 "reused" plots from the 1981 inventory were timberland on islands inaccessible in 1991 due to high water. The other 83 were woodland plots that were not remeasured in 1991. Instead, the 1981 woodland data were used in conjunction with the current phase-one map and photo data to produce woodland statistics for this report. Also, there were about 30 additional photo-points identified as potential woodland field plots on the 5,000-m grid that were omitted from both the 1981 and 1991 field inventories.

Timberland and woodland field plots are measured differently (USDA Forest Service 1990). Each timberland plot is a cluster of five variable-radius subplots covering about an acre. At each point, trees 5.0 inches d.b.h. and larger are selected using a 40 basal area factor. Trees between 1.0 inch and 4.9 inches d.b.h. are measured on a $\frac{1}{300}$ -acre micro plot.

Each woodland plot is measured using one $\frac{1}{10}$ -acre circular plot for trees 3.0 inches and larger in diameter at root collar (d.r.c.). Woodland trees less than 3.0 inches d.r.c. are measured using a $\frac{1}{300}$ -acre micro plot.

Data from the two phases are combined to produce the summary tables. Most data attributes are summarized by various classifications by using "double sampling for stratification" (Cochran 1977, p. 327). However, a slight modification is made to this theory when estimating attributes in county or ownership classifications. The general formulation for the estimation process is documented elsewhere (Born and Barnard 1983; Chojnacky, in preparation).

Data Reliability

There are two distinct classes of variables when considering data reliability. The tabled cell values—area, numbers of trees, volume, growth, and mortality—are random variables in a statistical sense and, therefore, have sampling errors. All the other "variables" in the table column and row headings—ownership, forest type, species, diameter class, productivity class, and so forth—are "classifications" that do not enter into the sampling error calculations.

Tables 2 and 3 list standard errors (SE) expressed in percent. This measure of uncertainty, also called a coefficient of variation (Steel and Torrie 1980), is computed for a random variable (area, trees, volume, growth, or mortality) by dividing the square root of the variable's variance by the variable total. The SE can also be viewed as a confidence interval at the 67 percent level.

The 67 percent confidence intervals for timberland area estimates ranged from 1.3 to 1.4 million acres (4 percent SE). Similarly, timberland volume ranged from 1.7 to 1.9 billion cubic feet (6 percent SE), net annual growth ranged from 27.8 to 36.8 million cubic feet (14 percent SE), and annual mortality ranged from 18.8 to 25.2 million cubic feet (15 percent SE).

For reporting purposes, FIA only includes the sampling error information in tables 2 and 3. However, a standard error can be computed for each cell in all 59 tables. Figures 6 to 9 illustrate this by showing standard error ranges (67 percent confidence intervals) for species and forest type categories.

The FIA also provides an approximation formula to proportion the table 2 and 3 percent standard error into estimates for other table cells (U.S. Department of Agriculture, Forest Service 1970).

$$\widetilde{SE}_c = \frac{SE_t \sqrt{\hat{Y}_t}}{\sqrt{\hat{Y}_c}} \quad (1)$$

where

\widetilde{SE}_c = approximate percent standard error of \hat{Y}_c

SE_t = percent standard error of \hat{Y}_t

\hat{Y} = table variable of interest (area, volume, growth, or mortality)

c = table cell or group of cells of interest

t = totals from tables 2 or 3

The approximation appears reasonable for the larger groupings. For example, the percent standard errors shown in figures 6 to 9 were mostly within 5 percent of the approximation. However, for some test cases the difference was 10 to 20 percent. These larger differences seemed related to small sample sizes (<10) or data for a particular species differing greatly from the rest.

There are several other sources of variation (error) not considered in the formal assessment of data reliability. Some of the random variables and classification variables such as volume, potential productivity, or growth are predicted from models that use other measured variables. These model predictions are handled in the same fashion as if they were actual field measurements, assuming little effect from prediction errors and negligible model bias. All data collected on field plots are assumed to adequately describe each plot on a per acre basis. No within-plot (between-tree) variation is considered in the uncertainty calculations. Field technique and measurement errors are dealt with by using independent quality control and training practices.

Basal area—The cross-sectional area of a tree expressed in square feet. For timber species the calculation is based on diameter at breast height (d.b.h.); for woodland species it is based on diameter at root collar (d.r.c.).

Christmas tree grade—Pinyon species are classified as Christmas trees using the following guidelines:

Premium—Excellent conical form with no gaps in branches and a straight bole.

Standard—Good conical form with small gaps in branches and bole slightly malformed.

Utility—Conical in form with branches missing and bole bent or malformed.

Cull—Not meeting one of the above classifications or over 12 feet in height.

Standard Forest Inventory and Analysis Terminology

Cord—A stack of wood equivalent to 128 cubic feet of wood and air space having standard dimensions of 4 by 4 by 8 feet. An average conversion factor of 75 cubic feet of solid wood per cord is used.

Crown cover—Percentage of the ground surface covered by a vertical projection of tree crowns. Synonymous with canopy cover.

Cull trees—Live timber species trees that are unmerchantable now or prospectively (see Rough trees and Rotten trees).

Cull volume—Portions of the volume in a timber species tree that are not usable for wood products because of rot, missing material, dead material, or other cubic-foot defect.

Diameter at breast height (d.b.h.)—Diameter of the stem measured 4.5 feet above the ground.

Diameter at root collar (d.r.c.)—Diameter equivalent for a woodland species, taken at the point nearest the ground line that represents the basal area of the tree stem or stems.

Diameter classes—Tree diameters, either d.b.h. or d.r.c., grouped into 2-inch classes, with the even inch the midpoint for the class.

Diameter outside bark (d.o.b.)—Tree diameter measurement taken over the bark.

Distance to road—The distance from a sample site to the nearest improved road, that could be accessed from the site. Improved roads are permanent, maintained roads.

Farmer/rancher-owned lands—Lands owned by a person who operates a farm or a ranch and who either does or directly supervises the work.

Fenceposts—Juniper and oak species are evaluated for post potential using the following criteria:

Line post—A 7-foot minimum length with a 5- to 7-inch diameter butt, 2.5-inch minimum small-end diameter, and reasonably straight and solid.

Corner post—An 8-foot minimum length with a 7- to 9-inch diameter butt, 2.5-inch minimum small-end diameter, and reasonably straight and solid.

Forest industry lands—Lands owned by companies or individuals operating a primary wood-processing plant, either within the State's boundaries or in nearby States or Provinces.

Forest lands—Lands at least 10 percent stocked by forest trees of any size, including lands that formerly had such tree cover and that will be regenerated naturally or artificially. The minimum area for classification of forest land is 1 acre. Roadside, streamside, and shelterbelt strips of trees must have a crown width of at least 120 feet to qualify as forest land. Unimproved roads and trails, streams, and clearings in forest areas are classified as forest if they are less than 120 feet wide.

Forest trees—Woody plants having a well-developed stem or stems, usually more than 12 feet tall at maturity, with a generally well-defined crown.

Forest type—A classification of forest land based on and named for the tree species presently forming a plurality of live-tree stocking.

Gross annual growth—The average annual increase in the net volume of trees.

Gross volume in board feet—The board-foot volume in the sawlog portion of a sawtimber tree. Volume is computed from a 1-foot stump to a minimum sawlog top of 7 inches d.o.b. for softwoods, or 9 inches d.o.b. for hardwoods; or to the point where the central stem breaks into limbs.

Growing-stock trees—Live timber species trees meeting specified standards of quality and vigor; excludes cull trees.

Growing-stock volume—Net cubic-foot volume in live poletimber-size and sawtimber-size growing-stock trees from a 1-foot stump to a minimum 4-inch top (of central stem) outside bark or to the point where the central stem breaks into limbs.

Growth—See Net annual growth.

Hardwood trees—Trees that are usually broad leaved and deciduous.

Indian Trust—Indian lands held in trust by the Federal Government for a Native American tribe or individual.

Industrial wood—All commercial roundwood products except fuelwood.

Land area—The area of dry land and land temporarily or partially covered by water such as marshes, swamps, river flood plains, streams, sloughs, estuaries, and canals less than 120 feet wide; and lakes, reservoirs, and ponds less than 1 acre.

Logging residue—The unused portions within the merchantable sections of growing-stock trees cut or killed during logging.

Mill or plant residue—Wood material from mills or other primary manufacturing plants that is not utilized for the mill's or plant's primary product. Mill or plant residue includes bark, slabs, edgings, trimmings, miscuts, sawdust, and shavings. Much of the mill and plant residue is used as fuel and as the raw material for such products as pulp, pelletized fuel, fiberwood, mulch, and animal bedding. Mill or plant residue includes bark and the following components:

Coarse residue—Wood material suitable for chipping, such as slabs, edgings, and trim.

Fine residue—Wood material unsuitable for chipping, such as sawdust, shavings, and veneer clippings.

Miscellaneous Federal lands—Lands administered by Federal agencies other than the Forest Service, U.S. Department of Agriculture, or the Bureau of Land Management, U.S. Department of the Interior.

Mortality—The net volume of growing-stock trees that have died from natural causes during a specified period.

National Forest lands—Public lands administered by the Forest Service, U.S. Department of Agriculture.

Net annual growth—Gross annual growth minus average annual mortality.

Net dead volume—For woodland species, net volume of dead trees plus net volume of dead material in live trees.

Net volume in board feet—The gross board-foot volume in the sawlog portion of growing-stock trees, less deductions for cull volume.

Net volume in cubic feet—For timber species, gross cubic-foot volume in the merchantable portion of trees, less deductions for cull volume. Volume is computed for the merchantable stem from a 1-foot stump to a minimum

4-inch top d.o.b., or to the point where the central stem breaks into limbs. For woodland species, gross cubic-foot volume less deductions for dead, missing, and rotten material. Volume is calculated for trees 3.0 inches and larger d.r.c. to a stem or branch top of 1.5 inches d.o.b.

Nonforest lands—Lands that do not currently qualify as forest land.

Nonindustrial private—All private ownerships except forest industry.

Nonstocked areas—Forest land less than 10 percent stocked with live trees.

Other private lands—Privately owned lands other than forest industry or Indian Trust.

Other public lands—Public lands administered by agencies other than the Forest Service, U.S. Department of Agriculture. Includes lands administered by other Federal, State, county, and local government agencies, including lands leased by these agencies for more than 50 years.

Other removals—The net volume of growing-stock trees removed from the inventory by cultural operations, such as timber-stand improvement, by land clearing, and by changes in land use, such as a shift to wilderness.

Poletimber stands—Stands at least 10 percent stocked with growing-stock trees, in which half or more of the stocking is sawtimber or poletimber trees or both, with poletimber stocking exceeding that of sawtimber (see Stocking).

Poletimber trees—Live timber species trees at least 5 inches d.b.h., but smaller than sawtimber.

Potential growth—The average net annual cubic-foot growth per acre at culmination of mean annual growth attainable in fully stocked natural stands.

Primary wood-processing plants—Plants using roundwood products, such as sawlogs, pulpwood bolts, and veneer logs.

Productivity—Potential yield capability of a stand (in cubic feet per acre per year) calculated here as a function of site index.

Productivity class—A classification of forest land that reflects biological potential. For timberlands, the index used is the potential net annual growth at culmination of mean annual increment in fully stocked natural stands. Woodland is classified as “high site” where sustained wood production is likely, or as “low site” where the continuous production of wood is unlikely.

Removals—The net volume of growing-stock trees removed from the inventory by harvesting, cultural operations, land clearing, and changes in land use.

Reserved forest land—Forest land withdrawn from tree utilization through statute or administrative designation.

Residue—See Mill or plant residue.

Rotten trees—Live poletimber or sawtimber trees with more than 67 percent of the total cubic-foot volume cull and with more than half of the cull volume attributable to rotten or missing material.

Rough trees—Live poletimber or sawtimber trees with more than 67 percent of the total cubic-foot volume cull and with less than half of the cull volume attributable to rotten or missing material.

Roundwood—Logs, bolts, or other round sections cut from trees.

Salvable dead trees—Standing dead timber species trees that meet growing-stock standards.

Saplings—Live timber species trees 1 to 4.9 inches d.b.h. or woodland tree species 1 to 2.9 inches d.r.c.

Sapling and seedling stands—Timberland stands at least 10 percent stocked on which more than half of the stocking is saplings or seedlings, or both.

Sawlog portion—That part of the bole of sawtimber trees between a 1-foot stump and the sawlog top.

Sawlog top—The point on the bole of sawtimber trees above which a sawlog cannot be produced. The minimum sawlog top is 7 inches d.o.b. for softwoods and 9 inches d.o.b. for hardwoods.

Sawtimber stands—Stands at least 10 percent stocked with growing-stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Sawtimber trees—Live timber species trees meeting regional size and defect specifications. Softwood trees must be at least 9 inches d.b.h. and hardwood trees 11 inches d.b.h.

Sawtimber volume—Net volume in board feet of the sawlog portion of live sawtimber trees.

Seedlings—Established live timber species trees less than 1 inch d.b.h. or woodland species less than 1 inch d.r.c.

Site index—Expected height (in feet) of a tree on a site at age 50 (or 80 for aspen and cottonwood) calculated from height-to-age equations. Trees selected for site index calculations are dominant or codominant within the stand, age 30 to 200 years, showing high vigor.

Softwood trees—Coniferous trees that are usually evergreen and have scalelike or linear needlelike leaves.

Standard error—An expression of the degree of confidence that can be placed on an estimated total or average obtained by statistical sampling methods. Standard errors do not include technique errors that occur in photo work, field measurements, or compilation.

Stand-size classes—A classification of forest land based on the predominant size of trees present (see Sawtimber stands, Poletimber stands, and Sapling and seedling stands).

Stocking—An expression of the extent to which growing space is effectively utilized by present or potential growing-stock trees.

Stocking condition—A categorization of timberland reflecting the degree to which the site is being utilized by growing-stock trees and other conditions affecting current and prospective timber growth (see Stocking):

Overstocked—Sites at least 60 percent stocked with growing-stock trees, but overstocked with live trees, including live cull trees.

Fully stocked—Sites at least 60 percent stocked with growing-stock trees and not overstocked.

Medium to fully stocked—Sites 35 to 60 percent stocked with growing-stock trees. Includes areas where other trees, inhibiting vegetation, or surface conditions prevent occupancy by growing-stock trees.

Poorly stocked—Sites less than 35 percent stocked with growing-stock trees.

Nonstocked—Forest land less than 10 percent stocked with growing-stock trees.

Mature—Sites with stands older than 100 years.

Timberland—Forest land where timber species make up at least 10 percent stocking. (This is equivalent to the definition for commercial forest land in Forest Service Handbook 4809.)

Timber species—Tree species traditionally used for industrial wood products. In the Interior West States, these include aspen, cottonwood, and paper birch hardwood species, and all softwood species except pinyon and juniper.

Timber stand improvement—Treatments such as thinning, pruning, release cutting, girdling, weeding, or poisoning of unwanted trees to improve growing conditions for the remaining trees.

Upper-stem portion—That part of the main stem or fork of sawtimber trees above the sawlog top to a minimum top diameter of 4 inches outside bark or to the point where the main stem or fork breaks into limbs.

Water—Streams, sloughs, estuaries, and canals more than 120 feet wide, and lakes, reservoirs, and ponds larger than 1 acre at mean high water level.

Wilderness—An area of undeveloped land currently included in the Wilderness System, managed to preserve its natural conditions and retain its primeval character and influence.

Woodland—Forest land where timber species make up less than 10 percent stocking.

Woodland average stand diameter class—A woodland stand classification based on the quadratic mean diameter (the diameter corresponding to the tree of average basal area d.r.c.) of the woodland component of the stand.

Woodland profile—A classification of woodland that combines slope, volume per acre, site class, and tree crown cover.

Woodland species—Tree species not usually converted into industrial wood products. Common uses are fuelwood, fenceposts, and Christmas trees.

References

- Benson, Robert E.; Green, Alan W.; Van Hooser, Dwane D. 1987. Idaho's forest resources. Resour. Bull. INT-39. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 114 p.
- Born, J. David; Barnard, Joseph E. 1983. FINSYS-2:Subsystem TABLE-2 and OUTPUT-2. Gen. Tech. Rep. NE-84. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 133 p.
- Brickell, James E. 1970. Equations and computer subroutines for estimating site quality of eight Rocky Mountain species. Res. Pap. INT-75. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 22 p.
- Chojnacky, David C. 1985. Pinyon-juniper volume equations for the central Rocky Mountain States. Res. Pap. INT-339. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 27 p.

- Chojnacky, David C. [In preparation]. Double sampling for stratification as used by Forest Inventory and Analysis. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station.
- Cochran, William G. 1977. Sampling Techniques. 3d ed. New York: John Wiley and Sons. 428 p.
- Edminster, Carleton B.; Getter, James R.; Story, Donna R. 1977. Past diameters and gross volumes of plains cottonwood in eastern Colorado. Res. Note RM-351. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 4 p.
- Hansen, Mark H.; Hahn, Jerold T. 1992. Determining stocking, forest type, and stand-size class from forest inventory data. Northern Journal of Applied Forestry. 9: 82-89.
- Kemp, Paul D. 1958. Volume tables. Unpublished report on file at: U.S. Department of Agriculture, Forest Service, Intermountain Research Station, Forestry Sciences Laboratory, Interior West Resource Inventory, Monitoring, and Evaluation Program, Ogden, UT.
- Moisen, Gretchen G.; Chojnacky, David C. [In press]. Total and merchantable cubic-foot volume equations for six tree species in western Montana and northern Idaho. Res. Pap. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station.
- Steel, Robert G.; Torrie, James H. 1980. Principles and procedures of statistics, a biometrical approach. 2d ed. New York: McGraw-Hill. 633 p.
- U.S. Department of Agriculture, Forest Service. 1970. Accuracy standards and periodicity of surveys, Forest Survey Handb. 11.1—1. Forest Service Handb., December 1970, Amendment No. 4: Washington, DC: U.S. Department of Agriculture, Forest Service.
- U.S. Department of Agriculture, Forest Service. 1990. Idaho forest survey field procedures, 1990-1991. Unpublished field guide on file at: U.S. Department of Agriculture, Forest Service, Intermountain Research Station, Forestry Sciences Laboratory, Interior West Resource Inventory, Monitoring, and Evaluation Program, Ogden, UT. 181 p.
- Wilson, Michael J.; Van Hooser, Dwane D. 1993. Forest statistics for land outside National Forests in northern Idaho, 1991. Resour. Bull. INT-80. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 58 p.
- Wykoff, William R.; Crookston, Nicholas L.; Stage, Albert R. 1982. User's guide to the stand Prognosis Model. Gen. Tech. Rep. INT-133. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 112 p.

Forest Inventory and Analysis Tables

Table 1—Total area by ownership class and land class in southern Idaho, 1991.

[Data set available for this report]

¹Data not available for this report.
²Not included with miscellaneous Federal, a component of other U.S. Department of Commerce, Bureau of Census. 1980.

Thirteen funds were used and were included in Section 12 and 13.

Table 2—Area of forest land outside National Forests with percent standard error in southern Idaho, 1991.

Item	Acres	Percent standard error
Timberland	1,347,319	±4.2
Woodland	652,256	±6.6
Reserved forest land ¹		
Timberland	34,629	
Woodland	5,140	
Total forest land ²	2,039,344	

¹Reserved land areas are estimated from aerial photos without field verification; therefore, standard errors are not calculated.

²On this and all following tables, totals may vary due to rounding.

Table 3—Net volume, net annual growth, and annual mortality of growing stock and sawtimber on timberland outside National Forests with percent standard error in southern Idaho.

Item	All species	
	Volume	Percent standard error
Net volume, 1991		
Growing stock (M cubic feet)	1,827,085	±6.3
Sawtimber ¹ (M board feet)	7,726,410	±6.8
Sawtimber ² (M board feet)	6,550,866	±6.9
Net annual growth, 1990		
Growing stock (M cubic feet)	32,277	±13.9
Sawtimber ¹ (M board feet)	216,236	±13.6
Sawtimber ² (M board feet)	189,456	±13.2
Annual mortality, 1990		
Growing stock (M cubic feet)	21,953	±14.6
Sawtimber ¹ (M board feet)	62,601	±21.8
Sawtimber ² (M board feet)	53,219	±22.2

¹International ¼-inch rule.

²Scribner rule.

Table 4—Total land area outside National Forests by major land class and owner group in southern Idaho, 1991.

Land class	Owner group					Total
	State	Other	Total other public	Forest industry	Nonindustrial private	
Acres-						
Timberland						
Reserved	3,489	31,140	34,629	—	—	34,629
Nonreserved	273,617	361,689	635,306	173,406	538,607	1,347,319
Total	277,106	392,829	669,935	173,406	538,607	1,381,948
Woodland						
Reserved	794	4,346	5,140	—	—	5,140
Nonreserved	88,275	395,689	483,964	14	168,278	652,256
Total	89,069	400,035	489,104	14	168,278	657,396
Total forest land						
Reserved	4,283	35,486	39,769	—	—	39,769
Nonreserved	361,892	757,378	1,119,270	173,420	706,885	1,999,575
Total	366,175	792,864	1,159,039	173,420	706,885	2,039,344
Nonforest land						
Total land area	1,464,314	12,064,150	13,528,464	22,923	11,288,864	24,840,251
	1,830,489	12,857,014	14,687,503	196,343	11,995,749	26,879,595

Timberland Tables

Area

Table 5—Area of timberland outside National Forests by forest type, stand-size class, and productivity class in southern Idaho, 1991.

Forest type and stand-size class	Productivity class					Total acres
	120-164	85-119	50-84	20-49	0-19	
Acres						
Douglas-fir						
Sawtimber	12,095	169,394	163,919	71,774	—	417,182
Poletimber	—	7,089	14,989	—	—	22,078
Sapling and seedling	—	8,145	27,321	3,642	—	39,108
Nonstocked	—	—	37,492	19,209	6,387	63,088
Total	12,095	184,628	243,721	94,625	6,387	541,456
Ponderosa pine						
Sawtimber	12,571	48,199	110,592	—	—	171,362
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	8,498	15,056	—	—	23,554
Nonstocked	—	12,539	—	—	—	12,539
Total	12,571	69,236	125,648	—	—	207,455
Lodgepole pine						
Sawtimber	—	—	17,755	—	—	17,755
Poletimber	—	—	5,343	10,685	—	16,028
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	—	—	—	—	—
Total	—	—	23,098	10,685	—	33,783
Limber pine						
Sawtimber	—	—	—	—	—	—
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	6,770	—	6,770
Nonstocked	—	—	—	6,220	—	6,220
Total	—	—	—	12,990	—	12,990
Grand fir						
Sawtimber	—	47,274	13,770	—	—	61,044
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	4,091	—	—	4,091
Nonstocked	—	5,932	—	—	—	5,932
Total	—	53,206	17,861	—	—	71,067
Spruce-fir						
Sawtimber	6,609	17,885	22,334	19,928	—	66,756
Poletimber	—	4,091	—	—	—	4,091
Sapling and seedling	—	8,498	—	9,049	—	17,547
Nonstocked	—	—	—	—	—	—
Total	6,609	30,474	22,334	28,977	—	88,394
Engelmann spruce						
Sawtimber	—	8,498	23,385	6,387	—	38,270
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	—	4,091	—	—	4,091
Total	—	8,498	27,476	6,387	—	42,361
Aspen						
Sawtimber	—	7,831	26,846	—	—	34,677
Poletimber	—	—	58,893	82,116	9,049	150,058
Sapling and seedling	—	—	16,138	61,264	14,474	91,876
Nonstocked	—	—	—	16,489	6,220	22,709
Total	—	7,831	101,877	159,869	29,743	299,320
Cottonwood						
Sawtimber	17,442	5,343	21,488	—	—	44,273
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	6,220	—	6,220
Nonstocked	—	—	—	—	—	—
Total	17,442	5,343	21,488	6,220	—	50,493
All types						
Sawtimber	48,717	304,424	400,089	98,089	—	851,319
Poletimber	—	11,180	79,225	92,801	9,049	192,255
Sapling and seedling	—	25,141	62,606	86,945	14,474	189,166
Nonstocked	—	18,471	41,583	41,918	12,607	114,579
Total	48,717	359,216	583,503	319,753	36,130	1,347,319

Table 6—Area of other publicly owned timberland by forest type, stand-size class, and productivity class in southern Idaho, 1991.

Forest type and stand-size class	Productivity class					Total acres
	120-164	85-119	50-84	20-49	0-19	
<i>Acres</i>						
Douglas-fir						
Sawtimber	5,454	81,739	98,016	65,490	—	250,699
Poletimber	—	7,089	6,770	—	—	13,859
Sapling and seedling	—	3,821	18,672	—	—	22,493
Nonstocked	—	—	18,075	12,925	6,387	37,387
Total	5,454	92,649	141,533	78,415	6,387	324,438
Ponderosa pine						
Sawtimber	—	34,039	21,030	—	—	55,069
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	6,609	—	—	—	6,609
Total	—	40,648	21,030	—	—	61,678
Lodgepole pine						
Sawtimber	—	—	—	—	—	—
Poletimber	—	—	5,343	10,685	—	16,028
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	—	—	—	—	—
Total	—	—	5,343	10,685	—	16,028
Limber pine						
Sawtimber	—	—	—	—	—	—
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	6,770	—	6,770
Nonstocked	—	—	—	3,078	—	3,078
Total	—	—	—	9,848	—	9,848
Grand fir						
Sawtimber	—	26,187	8,622	—	—	34,809
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	—	—	—	—	—
Total	—	26,187	8,622	—	—	34,809
Spruce-fir						
Sawtimber	6,609	17,885	5,454	19,928	—	49,876
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	—	—	—	—	—
Total	6,609	17,885	5,454	19,928	—	49,876
Engelmann spruce						
Sawtimber	—	—	9,272	6,387	—	15,659
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	—	—	—	—	—
Total	—	—	9,272	6,387	—	15,659
Aspen						
Sawtimber	—	—	10,166	—	—	10,166
Poletimber	—	—	7,089	39,660	—	46,749
Sapling and seedling	—	—	7,089	23,106	3,906	34,101
Nonstocked	—	—	—	—	3,078	3,078
Total	—	—	24,344	62,766	6,984	94,094
Cottonwood						
Sawtimber	14,300	5,343	6,155	—	—	25,798
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	3,078	—	3,078
Nonstocked	—	—	—	—	—	—
Total	14,300	5,343	6,155	3,078	—	28,876
All types						
Sawtimber	26,363	165,193	158,715	91,805	—	442,076
Poletimber	—	7,089	19,202	50,345	—	76,636
Sapling and seedling	—	3,821	25,761	32,954	3,906	66,442
Nonstocked	—	6,609	18,075	16,003	9,465	50,152
Total	26,363	182,712	221,753	191,107	13,371	635,306

Table 7—Area of forest industry owned timberland by forest type, stand-size class, and productivity class in southern Idaho, 1991.

Forest type and stand-size class	Productivity class					Total acres
	120-164	85-119	50-84	20-49	0-19	
- Acres -						
Douglas-fir						
Sawtimber	—	26,174	12,272	—	—	38,446
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	4,324	8,649	—	—	12,973
Nonstocked	—	—	4,091	—	—	4,091
Total	—	30,498	25,012	—	—	55,510
Ponderosa pine						
Sawtimber	—	14	33,538	—	—	33,552
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	8,498	8,415	—	—	16,913
Nonstocked	—	—	—	—	—	—
Total	—	8,512	41,953	—	—	50,465
Lodgepole pine						
Sawtimber	—	—	8,181	—	—	8,181
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	—	—	—	—	—
Total	—	—	8,181	—	—	8,181
Limber pine						
Sawtimber	—	—	—	—	—	—
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	—	—	—	—	—
Total	—	—	—	—	—	—
Grand fir						
Sawtimber	—	21,087	698	—	—	21,785
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	4,091	—	—	4,091
Nonstocked	—	—	—	—	—	—
Total	—	21,087	4,789	—	—	25,876
Spruce-fir						
Sawtimber	—	—	—	—	—	—
Poletimber	—	4,091	—	—	—	4,091
Sapling and seedling	—	8,498	—	—	—	8,498
Nonstocked	—	—	—	—	—	—
Total	—	12,589	—	—	—	12,589
Engelmann spruce						
Sawtimber	—	8,498	8,182	—	—	16,680
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	—	4,091	—	—	4,091
Total	—	8,498	12,273	—	—	20,771
Aspen						
Sawtimber	—	—	—	—	—	—
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	14	14
Nonstocked	—	—	—	—	—	—
Total	—	—	—	—	14	14
Cottonwood						
Sawtimber	—	—	—	—	—	—
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	—	—	—	—	—
Total	—	—	—	—	—	—
All types						
Sawtimber	—	55,773	62,871	—	—	118,644
Poletimber	—	4,091	—	—	—	4,091
Sapling and seedling	—	21,320	21,155	—	14	42,489
Nonstocked	—	—	8,182	—	—	8,182
Total	—	81,184	92,208	—	14	173,406

Table 8—Area of nonindustrial private timberland by forest type, stand-size class, and productivity class in southern Idaho, 1991.

Forest type and stand-size class	Productivity class					Total acres
	120-164	85-119	50-84	20-49	0-19	
-Acres-						
Douglas-fir						
Sawtimber	6,641	61,481	53,631	6,284	—	128,037
Poletimber	—	—	8,219	—	—	8,219
Sapling and seedling	—	—	—	3,642	—	3,642
Nonstocked	—	—	15,326	6,284	—	21,610
Total	6,641	61,481	77,176	16,210	—	161,508
Ponderosa pine						
Sawtimber	12,571	14,146	56,024	—	—	82,741
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	6,641	—	—	6,641
Nonstocked	—	5,930	—	—	—	5,930
Total	12,571	20,076	62,665	—	—	95,312
Lodgepole pine						
Sawtimber	—	—	9,574	—	—	9,574
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	—	—	—	—	—
Total	—	—	9,574	—	—	9,574
Limber pine						
Sawtimber	—	—	—	—	—	—
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	—	—	3,142	—	3,142
Total	—	—	—	3,142	—	3,142
Grand fir						
Sawtimber	—	—	4,450	—	—	4,450
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	5,932	—	—	—	5,932
Total	—	5,932	4,450	—	—	10,382
Spruce-fir						
Sawtimber	—	—	16,880	—	—	16,880
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	9,049	—	9,049
Nonstocked	—	—	—	—	—	—
Total	—	—	16,880	9,049	—	25,929
Engelmann spruce						
Sawtimber	—	—	5,931	—	—	5,931
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	—	—	—
Nonstocked	—	—	—	—	—	—
Total	—	—	5,931	—	—	5,931
Aspen						
Sawtimber	—	7,831	16,680	—	—	24,511
Poletimber	—	—	51,804	42,456	9,049	103,309
Sapling and seedling	—	—	9,049	38,158	10,554	57,761
Nonstocked	—	—	—	16,489	3,142	19,631
Total	—	7,831	77,533	97,103	22,745	205,212
Cottonwood						
Sawtimber	3,142	—	15,333	—	—	18,475
Poletimber	—	—	—	—	—	—
Sapling and seedling	—	—	—	3,142	—	3,142
Nonstocked	—	—	—	—	—	—
Total	3,142	—	15,333	3,142	—	21,617
All types						
Sawtimber	22,354	83,458	178,503	6,284	—	290,599
Poletimber	—	—	60,023	42,456	9,049	111,528
Sapling and seedling	—	—	15,690	53,991	10,554	80,235
Nonstocked	—	11,862	15,326	25,915	3,142	56,245
Total	22,354	95,320	269,542	128,646	22,745	538,607

Table 9—Area of timberland outside National Forests by stand volume and owner group in southern Idaho, 1991.

Stand volume per acre ¹	Owner group					
	Other public		Total other public	Forest industry	Nonindustrial private	Total
	State	Other				
<i>Acres</i>						
Less than 1,500 board feet	46,064	100,582	146,646	29,583	199,321	375,550
1,500 to 4,999 board feet	67,879	108,892	176,771	58,386	111,292	346,449
5,000 to 9,999 board feet	53,575	91,952	145,527	55,140	111,420	312,087
10,000 board feet or more	106,099	60,263	166,362	30,297	116,574	313,233
All classes	273,617	361,689	635,306	173,406	538,607	1,347,319

¹International 1/4-inch rule.

Table 10—Area of timberland outside National Forests by forest type and stocking condition in southern Idaho, 1991.

Forest type	Stocking condition						All classes
	Overstocked	Fully stocked	Medium to fully stocked	Poorly stocked	Mature	Nonstocked	
<i>Acres</i>							
Douglas-fir	7,089	76,352	139,455	140,207	115,266	63,087	541,456
Ponderosa pine	—	29,611	69,930	91,554	3,821	12,539	207,455
Lodgepole pine	—	—	24,799	8,985	—	—	33,784
Limber pine	—	—	—	6,770	—	6,219	12,989
Grand fir	—	8,498	52,546	4,091	—	5,932	71,067
Spruce-fir	—	10,796	42,911	7,088	27,597	—	88,392
Engelmann spruce	—	—	13,363	4,091	20,817	4,091	42,362
Aspen	5,454	66,538	132,885	71,735	—	22,709	299,321
Cottonwood	—	—	35,224	15,269	—	—	50,493
All types	12,543	191,795	511,113	349,790	167,501	114,577	1,347,319

Number of Trees

Table 11—Number of growing-stock trees on timberland outside National Forests by species and diameter class in southern Idaho, 1991.

Species	1.0-	3.0-	5.0-	7.0-	9.0-	11.0-	13.0-	15.0-	17.0-	19.0-	21.0-	23.0-	25.0-	27.0-	All	
	2.9	4.9	6.9	8.9	10.9	12.9	14.9	16.9	18.9	20.9	22.9	24.9	26.9	28.9	29.0+ classes	
- Thousand trees -																
Douglas-fir	25,527	15,183	12,352	8,040	8,694	5,359	4,010	3,101	1,789	1,348	873	478	353	157	496	87,760
Ponderosa pine	4,310	5,149	2,063	3,740	2,912	2,357	1,533	1,011	992	389	347	180	28	107	114	25,232
Lodgepole pine	2,078	2,856	3,313	1,539	1,209	412	160	314	—	59	22	—	—	—	—	11,962
Whitebark pine	2,031	—	683	—	95	357	—	—	—	19	—	—	—	—	—	3,185
Limber pine	219	—	215	258	92	—	85	—	—	17	30	46	—	—	—	6
Western larch	—	—	—	152	119	—	54	48	20	38	—	—	—	—	—	431
Grand fir	6,983	3,846	1,254	1,405	1,165	967	557	412	397	164	138	73	20	7	49	17,437
Subalpine fir	9,522	3,360	2,853	2,277	863	1,172	522	322	334	207	110	65	59	13	6	21,685
Engelmann spruce	2,293	1,293	1,292	268	1,469	494	368	224	189	50	19	80	12	—	17	8,068
Total softwoods	52,963	31,687	24,025	17,679	16,618	11,118	7,289	5,432	3,721	2,255	1,545	906	518	284	688	176,728
Aspen	58,579	28,638	25,401	11,032	5,526	1,422	426	116	33	—	—	—	—	—	—	131,173
Cottonwood	—	—	—	1,308	733	924	507	306	163	114	80	37	52	52	56	4,332
Total hardwoods	58,579	28,638	25,401	12,340	6,259	2,346	933	422	196	114	80	37	52	52	56	135,505
All species	111,542	60,325	49,426	30,019	22,877	13,464	8,222	5,854	3,917	2,369	1,625	943	570	336	744	312,233

Table 12—Number of cull and salvable dead trees on timberland outside National Forests by owner group, and softwoods and hardwoods in southern Idaho, 1991.

Owner group	Species group	Cull trees			Salvable dead trees	Total
		Rough	Rotten	Total		
<i>----- Thousand trees -----</i>						
Other public	Softwoods	317	66	383	1,514	1,897
	Hardwoods	540	315	855	877	1,732
	Total	857	381	1,238	2,391	3,629
Other	Softwoods	600	111	711	2,283	2,994
	Hardwoods	769	614	1,383	1,698	3,081
	Total	1,369	725	2,094	3,981	6,075
Total other public	Softwoods	917	177	1,094	3,797	4,891
	Hardwoods	1,309	929	2,238	2,575	4,813
	Total	2,226	1,106	3,332	6,372	9,704
Forest industry	Softwoods	621	388	1,009	745	1,754
	Hardwoods	—	—	—	—	—
	Total	621	388	1,009	745	1,754
Private	Softwoods	173	83	256	1,699	1,955
	Hardwoods	2,756	1,551	4,307	11,901	16,208
	Total	2,929	1,634	4,563	13,600	18,163
Total	Softwoods	1,711	648	2,359	6,241	8,600
	Hardwoods	4,065	2,480	6,545	14,476	21,021
	Total	5,776	3,128	8,904	20,717	29,621

Volume

Table 13—Net volume of growing stock on timberland outside National Forests by forest type and stand-size class in southern Idaho, 1991.

Forest type	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling/seedling	Nonstocked	
----- Thousand cubic feet -----					
Douglas-fir	774,592	32,772	17,932	8,965	834,261
Ponderosa pine	278,413	—	23,881	4,478	306,772
Lodgepole pine	26,648	8,372	—	—	35,020
Limber pine	—	—	425	—	425
Grand fir	133,676	—	3,301	3,356	140,333
Spruce-fir	145,019	3,841	9,390	—	158,250
Engelmann spruce	66,768	—	—	485	67,253
Aspen	46,476	153,125	14,944	685	215,230
Cottonwood	69,541	—	—	—	69,541
All types	1,541,133	198,110	69,873	17,969	1,827,085

Table 14—Net volume of sawtimber (International 1/4-inch rule) on timberland outside National Forests by forest type and stand-size class in southern Idaho, 1991.

Forest type	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling/seedling	Nonstocked	
----- Thousand board feet -----					
Douglas-fir	3,498,031	72,076	85,955	49,104	3,705,166
Ponderosa pine	1,491,943	—	106,949	30,502	1,629,394
Lodgepole pine	128,556	20,258	—	—	148,814
Limber pine	—	—	2,589	—	2,589
Grand fir	586,665	—	16,959	18,442	622,066
Spruce-fir	630,365	5,246	26,347	—	661,958
Engelmann spruce	340,913	—	—	—	340,913
Aspen	176,025	125,676	26,923	—	328,624
Cottonwood	286,886	—	—	—	286,886
All types	7,139,384	223,256	265,722	98,048	7,726,410

Table 15—Net volume of sawtimber (Scribner rule) on timberland outside National Forests by forest type and stand-size class in southern Idaho, 1991.

Forest type	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling/seedling	Nonstocked	
----- Thousand board feet -----					
Douglas-fir	2,972,224	60,035	72,284	41,526	3,146,069
Ponderosa pine	1,248,738	—	84,886	25,927	1,359,551
Lodgepole pine	109,897	17,074	—	—	126,971
Limber pine	—	—	2,111	—	2,111
Grand fir	503,868	—	14,543	15,905	534,316
Spruce-fir	536,344	4,568	22,500	—	563,412
Engelmann spruce	292,659	—	—	—	292,659
Aspen	152,145	103,150	23,464	—	278,759
Cottonwood	247,018	—	—	—	247,018
All types	6,062,893	184,827	219,788	83,358	6,550,866

Table 16—Net volume of growing stock on timberland outside National Forests by species and owner group in southern Idaho, 1991.

Species	Owner group					Total	
	Other public		Total other public	Forest industry	Nonindustrial private		
	State	Other					
----- Thousand cubic feet -----							
Douglas-fir	192,444	246,218	438,662	72,684	287,998	799,344	
Ponderosa pine	79,156	30,059	109,215	50,319	145,950	305,484	
Lodgepole pine	17,069	23,784	40,853	4,150	18,135	63,138	
Whitebark pine	404	7,261	7,665	—	—	7,665	
Limber pine	625	4,312	4,937	—	5,115	10,052	
Western larch	3,775	990	4,765	3,964	651	9,380	
Grand fir	43,109	10,102	53,211	60,692	13,716	127,619	
Subalpine fir	44,954	41,957	86,911	3,473	30,656	121,040	
Engelmann spruce	27,441	13,919	41,360	27,563	15,499	84,422	
Total softwoods	408,977	378,602	787,579	222,845	517,720	1,528,144	
Aspen	31,128	41,487	72,615	2	144,839	217,456	
Cottonwood	15,363	36,912	52,275	—	29,210	81,485	
Total hardwoods	46,491	78,399	124,890	2	174,049	298,941	
All species	455,468	457,001	912,469	222,847	691,769	1,827,085	

Table 17—Net volume of sawtimber (International ¼-inch rule) on timberland outside National Forests by species and owner group in southern Idaho, 1991.

Species	Owner group					Total
	Other public		Total other public	Forest industry	Nonindustrial private	
	State	Other				Thousand board feet
<i>Douglas-fir</i>						
Douglas-fir	921,696	1,104,032	2,025,728	311,406	1,323,248	3,660,382
Ponderosa pine	501,254	177,496	678,750	236,775	853,981	1,769,506
Lodgepole pine	62,153	81,432	143,585	6,761	76,105	226,451
Whitebark pine	2,169	39,034	41,203	—	—	41,203
Limber pine	3,213	22,616	25,829	—	20,230	46,059
Western larch	21,113	4,475	25,588	23,773	—	49,361
Grand fir	193,091	44,856	237,947	240,683	62,145	540,775
Subalpine fir	183,744	159,718	343,462	4,661	104,107	452,230
Engelmann spruce	130,535	72,272	202,807	141,463	80,713	424,983
Total softwoods	2,018,968	1,705,931	3,724,899	965,522	2,520,529	7,210,950
Aspen	20,741	26,217	46,958	—	132,437	179,395
Cottonwood	71,486	149,634	221,120	—	114,945	336,065
Total hardwoods	92,227	175,851	268,078	—	247,382	515,460
All species	2,111,195	1,881,782	3,992,977	965,522	2,767,911	7,726,410

Table 18—Net volume of sawtimber (Scribner rule) on timberland outside National Forests by species and owner group in southern Idaho, 1991.

Species	Owner group					Total
	Other public		Total other public	Forest industry	Nonindustrial private	
	State	Other				Thousand board feet
<i>Douglas-fir</i>						
Douglas-fir	794,049	934,382	1,728,431	266,479	1,121,871	3,116,781
Ponderosa pine	427,675	147,144	574,819	187,721	712,619	1,475,159
Lodgepole pine	53,548	68,154	121,702	5,310	65,523	192,535
Whitebark pine	1,719	30,927	32,646	—	—	32,646
Limber pine	2,835	19,924	22,759	—	17,495	40,254
Western larch	17,331	3,479	20,810	19,636	—	40,446
Grand fir	168,439	38,820	207,259	205,358	53,515	466,132
Subalpine fir	157,443	136,436	293,879	4,024	86,673	384,576
Engelmann spruce	110,897	61,880	172,777	121,214	70,195	364,186
Total softwoods	1,733,936	1,441,146	3,175,082	809,742	2,127,891	6,112,715
Aspen	16,731	21,094	37,825	—	109,981	147,806
Cottonwood	61,215	128,805	190,020	—	100,325	290,345
Total hardwoods	77,946	149,899	227,845	—	210,306	438,151
All species	1,811,882	1,591,045	3,402,927	809,742	2,338,197	6,550,866

Table 19—Net volume of growing stock on timberland outside National Forests by species and diameter class in southern Idaho, 1991.

Species	5.0-	7.0-	9.0-	11.0-	13.0-	15.0-	17.0-	19.0-	21.0-	23.0-	25.0-	27.0-	All classes	
	6.9	8.9	10.9	12.9	14.9	16.9	18.9	20.9	22.9	24.9	26.9	28.9	29.0+	
Diameter class (inches at breast height)														
	Thousand cubic feet													
Douglas-fir	29,634	50,731	82,780	85,436	93,018	96,310	70,628	71,342	58,965	35,929	30,251	15,089	79,230	799,343
Ponderosa pine	4,057	17,775	26,982	35,726	36,660	35,195	43,064	21,852	23,684	16,435	3,053	13,996	27,006	305,485
Lodgepole pine	8,153	9,525	15,795	8,319	4,560	11,322	—	3,603	1,861	—	—	—	—	63,138
Whitebark pine	746	—	1,133	4,829	—	—	—	—	—	956	—	—	—	7,664
Limber pine	361	1,758	927	—	1,986	—	—	—	—	438	1,417	2,478	—	10,051
Western larch	—	1,048	1,422	—	1,792	1,911	927	2,280	—	—	—	—	—	9,380
Grand fir	3,417	7,944	12,634	17,831	14,671	14,302	17,610	9,135	9,881	7,270	2,447	678	9,799	127,619
Subalpine fir	9,508	13,797	8,646	18,722	13,319	11,204	13,764	11,433	8,033	5,128	5,267	1,318	901	121,040
Engelmann spruce	3,848	2,001	16,833	10,676	10,787	9,061	11,150	3,792	1,665	9,383	2,021	—	3,204	84,421
Total softwoods	59,724	104,579	167,152	181,539	176,793	179,305	157,143	123,437	105,483	75,562	45,517	31,081	120,826	1,528,141
Aspen	66,059	62,453	53,978	20,809	9,453	3,019	1,685	—	—	—	—	—	—	217,456
Cottonwood	—	6,287	6,036	15,055	11,043	9,314	5,012	4,739	4,486	2,210	3,829	3,777	9,700	81,488
Total hardwoods	66,059	68,740	60,014	35,864	20,496	12,333	6,697	4,739	4,486	2,210	3,829	3,777	9,700	298,944
All species	125,783	173,319	227,166	217,403	197,289	191,638	163,840	128,176	109,969	77,772	49,346	34,858	130,526	1,827,085

Table 20—Net volume of sawtimber (International $\frac{1}{4}$ -inch rule) on timberland outside National Forests by species and diameter class in southern Idaho, 1991.

Species	9.0-	11.0-	13.0-	15.0-	Diameter class (inches at breast height)			23.0-	25.0-	27.0-	All
	10.9	12.9	14.9	16.9	18.9	20.9	22.9	24.9	26.9	28.9	classes
- Thousand board feet -											
Douglas-fir	288,577	385,341	452,271	495,503	379,644	389,479	328,565	204,788	175,925	88,747	471,544
Ponderosa pine	89,726	168,246	210,822	224,174	289,317	153,036	170,250	120,663	22,736	107,771	212,765
Lodgepole pine	60,224	47,137	25,529	63,622	—	19,846	10,091	—	—	—	226,449
Whitebark pine	6,674	28,785	—	—	—	—	5,744	—	—	—	—
Limber pine	2,701	—	11,540	11,794	5,857	14,453	2,951	8,864	15,396	—	4,607
Western larch	6,310	—	10,948	72,971	89,910	47,355	50,402	34,564	11,227	3,328	46,059
Grand fir	38,471	82,664	71,416	53,569	64,948	53,902	38,163	24,174	24,292	5,944	49,362
Subalpine fir	32,221	87,536	63,719	51,474	63,768	21,776	9,590	56,571	12,848	—	540,776
Engelmann spruce	67,568	60,016	60,714	—	—	—	—	—	—	—	424,982
Total softwoods	592,472	859,725	906,959	973,107	893,444	699,847	615,756	449,624	262,424	205,790	751,801
Aspen	XXXXX	106,916	48,837	15,267	8,375	—	—	—	—	—	179,395
Cottonwood	XXXXX	77,315	55,969	46,469	23,964	22,084	20,609	9,967	17,292	16,955	45,442
Total hardwoods	XXXXX	184,231	104,806	61,736	32,339	22,084	20,609	9,967	17,292	16,955	45,442
All species	592,472	1,043,956	1,011,765	1,034,843	925,783	721,931	636,365	459,591	279,716	222,745	797,243
											7,726,410

Table 21—Net volume of sawtimber (Scribner rule) on timberland outside National Forests by species and diameter class in southern Idaho, 1991.

Species	9.0-	11.0-	13.0-	15.0-	Diameter class (inches at breast height)	19.0-	21.0-	23.0-	25.0-	27.0-	All classes
	10.9	12.9	14.9	16.9	18.9	20.9	22.9	24.9	26.9	28.9	29.0+
--- Thousand board feet ---											
Douglas-fir	224,664	302,300	373,561	420,154	326,842	339,345	292,423	182,261	156,573	78,985	419,674
Ponderosa pine	63,073	125,504	170,075	186,809	244,118	130,443	145,936	104,101	19,822	95,916	189,361
Lodgepole pine	50,638	38,682	21,649	54,922	—	17,663	8,981	—	—	—	192,535
Whitebark pine	5,064	22,471	—	9,652	—	—	5,111	—	—	—	32,646
Limber pine	2,404	—	8,799	9,748	4,927	12,460	—	2,520	7,881	13,696	4,100
Western larch	4,513	—	60,329	63,073	78,716	41,857	44,787	—	—	—	40,447
Grand fir	32,562	66,856	69,804	53,689	46,155	56,477	47,440	33,879	21,498	21,613	466,133
Subalpine fir	25,385	—	49,303	51,135	44,156	55,513	19,089	8,535	50,348	11,435	5,290
Engelmann spruce	56,286	—	—	—	—	—	—	—	—	—	3,346
Total softwoods	464,589	674,920	748,889	825,017	766,593	608,297	542,172	398,851	233,131	183,153	669,103
Aspen	XXXXX	85,810	41,385	13,158	7,453	—	—	—	—	—	147,806
Cottonwood	XXXXX	63,924	47,609	40,337	20,876	19,497	18,309	8,871	15,389	15,090	40,443
Total hardwoods	XXXXX	149,734	88,994	53,495	28,329	19,497	18,309	8,871	15,389	15,090	40,443
All species	464,589	824,654	837,883	878,512	794,922	627,794	560,481	405,722	248,520	198,243	709,546
											6,550,866

Table 22—Net volume of timber on timberland outside National Forests by class of timber, and softwoods and hardwoods in southern Idaho, 1991.

Class of timber	Softwoods	Hardwoods	Total
- Thousand cubic feet -			
Sawtimber trees	1,223,060	79,985	1,303,045
Sawlog portion	140,781	24,143	164,924
Upper-stem portion			
Total	1,363,841	104,128	1,467,969
Poletimber trees	164,302	194,814	359,116
All growing-stock trees	1,528,143	298,942	1,827,085
Rough cull trees	13,572	14,034	27,606
Rotten cull trees	3,252	3,921	7,173
Salvable dead trees	71,697	28,965	100,662
All timber	1,616,664	345,862	1,962,526

Table 23—Net volume of growing stock on timberland outside National Forests by forest type and species in southern Idaho, 1991.

Forest type	Douglas-fir	Ponderosa pine	Lodgepole pine	Whitebark pine	Limber pine	Western larch	Grand fir	Subalpine fir	Engelmann spruce	Total softwoods	Cottonwood	Total hardwoods	All species
- Thousand cubic feet -													
Douglas-fir	648,915	60,154	24,915	—	6,579	6,765	23,456	25,667	10,922	807,373	26,886	—	26,886
Ponderosa pine	60,704	228,747	2,494	—	—	—	9,788	—	1,717	303,450	3,321	—	3,321
Lodgepole pine	1,874	5,617	22,609	—	—	—	3,296	—	1,001	34,397	623	—	623
Limber pine	426	—	—	—	—	—	—	—	—	426	—	—	426
Grand fir	20,660	10,686	—	—	2,615	80,412	6,847	17,379	138,599	—	—	1,735	1,735
Spruce-fir	41,791	280	11,990	7,665	—	1,694	85,585	6,286	155,291	2,960	—	2,960	2,960
Engelmann spruce	4,751	—	—	—	3,472	—	8,973	2,941	47,117	67,254	—	—	—
Aspen	20,223	—	1,130	—	—	—	—	—	—	21,353	183,667	10,209	193,876
Cottonwood	—	—	—	—	—	—	—	—	—	—	69,541	69,541	69,541
All types	799,344	305,484	63,138	7,665	10,051	9,380	127,619	121,040	84,422	1,528,143	217,457	81,485	298,942
													1,827,085

Table 24—Net volume of sawtimber (International 1/4-inch rule) on timberland outside National Forests by forest type and species in southern Idaho, 1991.

Forest type	Douglas-fir	Ponderosa pine	Lodgepole pine	Whitebark pine	Limber pine	Western larch	Species									
	Douglas-fir	Ponderosa pine	Lodgepole pine	Whitebark pine	Limber pine	Western larch	Grand fir	Subalpine fir	Engelmann spruce	Total softwoods	Aspen	Cottonwood	Total hardwoods	Total	All species	
- - - Thousand board feet - - -																
Douglas-fir	2,954,544	345,796	75,484	—	41,709	105,687	103,412	42,327	3,705,165	—	—	—	—	3,705,165	—	
Ponderosa pine	256,837	1,314,028	12,116	—	—	36,808	—	9,605	1,629,394	—	—	—	—	1,629,394	—	
Lodgepole pine	9,645	36,907	80,450	—	—	—	16,071	—	5,741	148,814	—	—	—	—	148,814	—
Limber pine	2,589	—	—	—	—	—	—	—	—	2,589	—	—	—	—	2,589	—
Grand fir	86,222	72,775	—	—	—	—	7,653	331,127	20,888	94,466	613,131	—	8,937	8,937	622,068	622,068
Spruce-fir	225,737	—	52,031	41,203	—	8,703	318,136	16,147	661,957	—	—	—	—	—	661,957	—
Engelmann spruce	22,190	—	—	—	9,854	—	42,379	9,793	256,697	340,913	—	—	—	—	340,913	—
Aspen	102,618	—	6,369	—	—	—	—	—	108,987	179,395	40,242	219,637	328,624	328,624	328,624	328,624
Cottonwood	—	—	—	—	—	—	—	—	—	—	286,886	286,886	286,886	286,886	286,886	286,886
All types	3,660,382	1,769,506	226,450	41,203	46,060	49,362	540,775	452,229	424,983	7,210,950	179,395	336,065	515,460	7,726,410	7,726,410	—

Table 25—Net volume of sawtimber (Scribner rule) on timberland outside National Forests by forest type and species in southern Idaho, 1991.

Forest type	Douglas-fir	Ponderosa pine	Lodgepole pine	Whitebark pine	Limber pine	Western larch	Species										
	Douglas-fir	Ponderosa pine	Lodgepole pine	Whitebark pine	Limber pine	Western larch	Grand fir	Subalpine fir	Engelmann spruce	Total softwoods	Aspen	Cottonwood	Total hardwoods	Total	All species		
- - - Thousand board feet - - -																	
Douglas-fir	2,510,132	288,688	64,922	—	31,765	33,979	91,279	90,058	35,246	3,146,069	—	—	—	—	3,146,069	—	
Ponderosa pine	217,160	1,092,926	9,734	—	—	—	32,023	—	7,708	1,359,551	—	—	—	—	1,359,551	—	
Lodgepole pine	8,226	31,541	68,463	—	—	—	13,728	—	5,013	126,971	—	—	—	—	126,971	—	
Limber pine	2,111	—	—	—	—	—	—	—	—	2,111	—	—	—	—	2,111	—	
Grand fir	74,070	62,004	43,916	32,646	—	6,467	284,803	18,095	81,308	526,747	—	7,569	7,569	534,316	534,316	—	
Spruce-fir	196,996	—	—	—	8,488	—	7,603	268,750	13,501	563,412	—	—	—	—	563,412	—	
Engelmann spruce	18,392	—	5,500	—	—	—	36,696	7,673	221,410	292,659	—	—	—	—	292,659	—	
Aspen	89,695	—	—	—	—	—	—	—	—	95,195	147,806	35,758	183,564	183,564	183,564	278,759	
Cottonwood	—	—	—	—	—	—	—	—	—	—	247,018	247,018	247,018	247,018	247,018	247,018	
All types	3,116,782	1,475,159	192,535	32,646	40,253	40,446	466,132	384,576	364,186	6,112,715	147,806	290,345	438,151	438,151	438,151	6,550,866	6,550,866

Growth

Table 26—Net annual growth of growing stock on timberland outside National Forests by species and owner group in southern Idaho, 1990.

Species	Owner group					Total
	State	Other	Total other public	Forest industry	Nonindustrial private	
----- Thousand cubic feet -----						
Douglas-fir	2,209	3,127	5,336	2,479	6,429	14,244
Ponderosa pine	1,935	929	2,864	2,080	3,825	8,769
Lodgepole pine	640	661	1,301	127	874	2,302
Whitebark pine	32	574	606	—	—	606
Limber pine	10	66	76	—	90	166
Western larch	-38	-24	-62	142	7	87
Grand fir	314	286	600	1,269	600	2,469
Subalpine fir	-197	28	-169	-174	1,320	977
Engelmann spruce	-94	104	10	1,776	234	2,020
Total softwoods	4,811	5,751	10,562	7,699	13,379	31,640
Aspen	242	304	546	— ¹	-1,817	-1,271
Cottonwood	520	1,001	1,521	—	387	1,908
Total hardwoods	762	1,305	2,067	—	-1,430	637
All species	5,573	7,056	12,629	7,699	11,949	32,277

¹Less than 500 cubic feet.

Table 27—Net annual growth of sawtimber (International ¼-inch rule) on timberland outside National Forests by species and owner group in southern Idaho, 1990.

Species	Owner group					Total
	State	Other	Total other public	Forest industry	Nonindustrial private	
----- Thousand board feet -----						
Douglas-fir	13,960	28,622	42,582	13,664	35,290	91,536
Ponderosa pine	13,345	6,346	19,691	19,676	26,100	65,467
Lodgepole pine	3,137	2,903	6,040	124	1,542	7,706
Whitebark pine	56	1,004	1,060	—	—	1,060
Limber pine	41	296	337	—	273	610
Western larch	-246	-163	-409	907	—	498
Grand fir	1,740	1,676	3,416	5,435	4,556	13,407
Subalpine fir	-365	854	489	174	93	756
Engelmann spruce	3,991	872	4,863	3,322	1,227	9,412
Total softwoods	35,659	42,410	78,069	43,302	69,081	190,452
Aspen	5,461	5,456	10,917	—	-1,454	9,463
Cottonwood	3,845	11,111	14,956	—	1,365	16,321
Total hardwoods	9,306	16,567	25,873	—	-89	25,784
All species	44,965	58,977	103,942	43,302	68,992	216,236

Table 28—Net annual growth of sawtimber (Scribner rule) on timberland outside National Forests by species and owner group in southern Idaho, 1990.

Species	Owner group					Total
	State	Other	Total other public	Forest industry	Nonindustrial private	
-Thousand board feet-						
Douglas-fir	12,472	25,717	38,189	12,293	31,338	81,820
Ponderosa pine	11,530	5,445	16,975	14,862	22,903	54,740
Lodgepole pine	2,809	2,615	5,424	113	1,395	6,932
Whitebark pine	51	919	970	—	—	970
Limber pine	37	267	304	—	248	552
Western larch	-58	-77	-135	837	—	702
Grand fir	1,646	1,520	3,166	5,194	4,110	12,470
Subalpine fir	-162	882	720	157	159	1,036
Engelmann spruce	3,670	790	4,460	2,978	1,099	8,537
Total softwoods	31,995	38,078	70,073	36,434	61,252	167,759
Aspen	4,353	4,377	8,730	—	-1,010	7,720
Cottonwood	3,352	9,346	12,698	—	1,279	13,977
Total hardwoods	7,705	13,723	21,428	—	269	21,697
All species	39,700	51,801	91,501	36,434	61,521	189,456

Table 29—Net annual growth of growing stock on timberland outside National Forests by species and diameter class in southern Idaho, 1990.

Species	5.0-	7.0-	9.0-	11.0-	13.0-	15.0-	17.0-	19.0-	21.0-	23.0-	25.0-	27.0-	All classes
	6.9	8.9	10.9	12.9	14.9	16.9	18.9	20.9	22.9	24.9	26.9	28.9	29.0+
Diameter class (inches at breast height)													
Douglas-fir	1,411	1,148	2,454	2,193	1,531	2,151	1,798	354	547	209	-325	294	480
Ponderosa pine	291	696	901	1,168	1,404	1,019	1,153	629	571	361	79	226	271
Lodgepole pine	1,077	349	360	175	91	174	—	40	35	—	—	—	8,769
Whitebark pine	414	—	34	145	—	—	—	—	12	—	—	—	2,301
Limber pine	10	42	15	—	23	—	—	—	16	13	41	—	605
Western larch	—	11	-102	—	44	64	43	26	—	—	—	7	167
Grand fir	165	417	585	457	-124	608	169	273	19	-299	34	6	86
Subalpine fir	1,216	-165	27	247	291	-546	251	-364	104	64	60	4	2,469
Engelmann spruce	1,210	36	582	277	282	121	-673	39	10	98	13	—	977
Total softwoods	5,794	2,534	4,856	4,662	3,542	3,591	2,741	997	1,314	446	-98	530	730
Aspen	-1,056	-451	404	69	-287	16	34	—	—	—	—	—	-1,271
Cottonwood	—	135	148	546	198	124	134	158	188	47	91	88	52
Total hardwoods	-1,056	-316	552	615	-89	140	168	158	188	47	91	88	52
All species	4,738	2,218	5,408	5,277	3,453	3,731	2,909	1,155	1,502	493	-7	618	782
All, 32,277													

Table 30—Net annual growth of sawtimber (International 1/4-inch rule) on timberland outside National Forests by species and diameter class in southern Idaho, 1990.

Species	9.0-	11.0-	13.0-	15.0-	17.0-	18.9	18.9	20.9	22.9	24.9	24.9	26.9	26.9	All classes
	10.9	12.9	14.9	16.9	16.9	18.9	20.9	20.9	22.9	23.0-	23.0-	25.0-	27.0-	29.0+ classes
Diameter class (inches at breast height)														
Douglas-fir	33,692	12,985	9,615	13,003	10,840	2,702	3,719	1,451	-1,486	1,892	3,124	91,537		
Ponderosa pine	11,342	8,767	10,709	8,041	9,174	4,947	4,564	2,858	638	2,219	2,207	65,466		
Lodgepole pine	4,904	962	494	961	—	201	183	—	—	—	—	—	7,705	
Whitebark pine	186	811	—	—	—	—	62	—	—	—	—	—	1,059	
Limber pine	45	—	128	—	—	—	98	72	226	—	—	41	610	
Western larch	-644	—	276	407	287	172	—	—	—	—	—	—	498	
Grand fir	4,467	2,968	-140	3,530	1,448	1,487	212	-1,352	146	31	610	13,407		
Subalpine fir	557	1,391	1,488	-2,572	1,235	-1,627	543	332	280	17	-887	757		
Engelmann spruce	8,034	1,619	1,637	701	-3,826	228	61	694	91	—	174	9,413		
Total softwoods	62,583	29,503	24,207	24,071	19,158	8,110	9,442	4,055	-105	4,159	5,269	190,452		
Aspen	XXXXXX	10,740	-1,503	74	152	—	—	—	—	—	—	—	9,463	
Cottonwood	XXXXXX	11,565	913	498	561	657	793	215	427	419	273	273	16,321	
Total hardwoods	XXXXXX	22,305	-590	572	713	657	793	215	427	419	273	273	25,784	
All species	62,583	51,808	23,617	24,643	19,871	8,767	10,235	4,270	322	4,578	5,542	216,236		
All, 216,236														

Table 31—Net annual growth of sawtimber (Scribner rule) on timberland outside National Forests by species and diameter class in southern Idaho, 1990.

Species	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 22.9	23.0- 24.9	25.0- 26.9	27.0- 28.9	29.0+ 29.0+	All classes
	Diameter class (inches at breast height) Thousand board feet											
Douglas-fir	28,965	11,903	9,024	11,773	9,766	2,645	3,310	1,292	-1,323	1,684	2,780	81,819
Ponderosa pine	7,485	7,370	9,388	7,082	8,067	4,337	4,001	2,507	564	1,975	1,964	54,740
Lodgepole pine	4,382	881	452	876	—	179	163	—	—	—	—	6,933
Whitebark pine	170	743	—	—	—	—	57	—	—	—	—	970
Limber pine	40	—	117	—	—	—	90	66	203	—	—	553
Western larch	-352	—	254	376	265	159	—	—	—	—	—	702
Grand fir	3,995	2,807	22	3,207	1,383	1,351	205	-1,201	130	—	—	543
Subalpine fir	514	1,367	1,353	-2,175	1,122	-1,412	489	299	253	15	-789	12,469
Engelmann spruce	7,158	1,453	1,469	630	-3,287	205	54	618	81	—	155	1,036
Total softwoods	52,357	26,524	22,079	21,769	17,316	7,464	8,369	3,581	-92	3,701	4,690	167,758
XXXXXX	8,693	-1,177	70	135	—	—	—	—	—	—	—	7,721
XXXXXX	9,598	883	489	517	593	710	192	380	372	372	243	13,977
Total hardwoods	XXXXX	18,291	-294	559	652	593	710	192	380	372	243	21,698
All species	52,357	44,815	21,785	22,328	17,968	8,057	9,079	3,773	288	4,073	4,933	189,456

Mortality

Table 32—Annual mortality of growing stock on timberland outside National Forests by species and owner group in southern Idaho, 1990.

Species	Owner group					Total	
	Other public		Total other public	Forest industry	Nonindustrial private		
	State	Other					
<i>Thousand cubic feet</i>							
Douglas-fir	2,206	2,522	4,728	350	1,460	6,538	
Ponderosa pine	—	—	—	304	574	878	
Lodgepole pine	63	28	91	66	—	157	
Whitebark pine	—	—	—	—	—	—	
Limber pine	—	—	—	—	—	—	
Western larch	90	39	129	—	—	129	
Grand fir	949	78	1,027	996	—	2,023	
Subalpine fir	1,152	817	1,969	265	513	2,747	
Engelmann spruce	929	77	1,006	—	—	1,006	
Total softwoods	5,389	3,561	8,950	1,981	2,547	13,478	
Aspen	620	1,048	1,668	—	6,324	7,992	
Cottonwood	14	115	129	—	354	483	
Total hardwoods	634	1,163	1,797	—	6,678	8,475	
All species	6,023	4,724	10,747	1,981	9,225	21,953	

Table 33—Annual mortality of sawtimber (International 1/4-inch rule) on timberland outside National Forests by species and owner group in southern Idaho, 1990.

Species	Owner group					Total	
	Other public		Total other public	Forest industry	Nonindustrial private		
	State	Other					
<i>Thousand board feet</i>							
Douglas-fir	10,908	10,537	21,445	1,824	6,446	29,715	
Ponderosa pine	—	—	—	418	2,951	3,369	
Lodgepole pine	—	—	—	—	—	—	
Whitebark pine	—	—	—	—	—	—	
Limber pine	—	—	—	—	—	—	
Western larch	533	232	765	—	—	765	
Grand fir	4,532	374	4,906	4,609	—	9,515	
Subalpine fir	4,235	2,287	6,522	—	1,733	8,255	
Engelmann spruce	5,318	439	5,757	—	—	5,757	
Total softwoods	25,526	13,869	39,395	6,851	11,130	57,376	
Aspen	19	158	177	—	3,393	3,570	
Cottonwood	49	413	462	—	1,193	1,655	
Total hardwoods	68	571	639	—	4,586	5,225	
All species	25,594	14,440	40,034	6,851	15,716	62,601	

Table 34—Annual mortality of sawtimber (Scribner rule) on timberland outside National Forests by species and owner group in southern Idaho, 1990.

Species	Owner group					
	State	Other	Total other public	Forest industry	Nonindustrial private	Total
<i>Thousand board feet</i>						
Douglas-fir	9,399	9,083	18,482	1,562	5,360	25,404
Ponderosa pine	—	—	—	251	2,291	2,542
Lodgepole pine	—	—	—	—	—	—
Whitebark pine	—	—	—	—	—	—
Limber pine	—	—	—	—	—	—
Western larch	322	140	462	—	—	462
Grand fir	4,017	331	4,348	3,909	—	8,257
Subalpine fir	3,673	1,969	5,642	—	1,499	7,141
Engelmann spruce	4,637	383	5,020	—	—	5,020
Total softwoods	22,048	11,906	33,954	5,722	9,150	48,826
Aspen	14	120	134	—	2,821	2,955
Cottonwood	42	357	399	—	1,039	1,438
Total hardwoods	56	477	533	—	3,860	4,393
All species	22,104	12,383	34,487	5,722	13,010	53,219

Table 35—Annual mortality of growing stock on timberland outside National Forests by species and diameter class in southern Idaho, 1990.

Species	5.0-	7.0-	9.0-	11.0-	13.0-	15.0-	17.0-	19.0-	21.0-	23.0-	25.0-	27.0-	28.9	29.0+	All classes
	6.9	8.9	10.9	12.9	14.9	16.9	18.9	20.9	22.9	24.9	26.9	28.9	29.0+		
Diameter class (inches at breast height)															
Douglas-fir	145	684	492	355	954	370	127	1,197	622	462	788	—	341	6,537	
Ponderosa pine	97	82	271	210	—	113	105	—	—	—	—	—	—	—	878
Lodgepole pine	157	—	—	—	—	—	—	—	—	—	—	—	—	—	157
Whitebark pine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Limber pine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Western larch	—	—	129	—	—	—	—	—	—	—	—	—	—	—	129
Grand fir	—	—	234	538	—	548	—	—	224	480	—	—	—	—	2,024
Subalpine fir	265	599	240	139	—	738	—	548	—	—	—	—	—	—	2,747
Engelmann spruce	—	—	—	—	—	—	1,006	—	—	—	—	—	—	—	1,006
Total softwoods	664	1,365	1,132	938	1,492	1,221	1,786	1,745	846	942	788	—	559	13,478	
Aspen	4,226	2,079	996	264	426	—	—	—	—	—	—	—	—	—	7,991
Cottonwood	—	70	75	—	105	147	—	—	—	—	—	—	—	—	484
Total hardwoods	4,226	2,149	1,071	264	531	147	—	—	—	—	—	—	—	—	8,475
All species	4,890	3,514	2,203	1,202	2,023	1,368	1,786	1,745	846	942	788	—	646	21,953	

Table 36—Annual mortality of sawtimber (International 1/4-inch rule) on timberland outside National Forests by species and diameter class in southern Idaho, 1990.

Species	9.0-	11.0-	13.0-	15.0-	17.0-	19.0-	21.0-	23.0-	25.0-	27.0-	28.9	29.0+	All classes
	10.9	12.9	14.9	16.9	18.9	20.9	22.9	24.9	26.9	28.9	29.0+		
Douglas-fir	1,886	1,557	4,669	1,860	696	3,438	2,631	4,400	—	1,932	—	—	29,715
Ponderosa pine	856	1,067	—	733	712	—	—	—	—	—	—	—	3,368
Lodgepole pine	—	—	—	—	—	—	—	—	—	—	—	—	—
Whitebark pine	—	—	—	—	—	—	—	—	—	—	—	—	—
Limber pine	—	—	—	—	—	—	—	—	—	—	—	—	—
Western larch	765	—	—	—	—	—	—	—	—	—	—	—	765
Grand fir	—	1,077	2,469	—	2,604	—	1,063	2,303	—	—	—	—	9,516
Subalpine fir	630	620	—	3,532	—	2,561	—	—	—	—	912	—	8,255
Engelmann spruce	—	—	—	—	5,757	—	—	—	—	—	—	—	5,757
Total softwoods	4,137	4,321	7,138	6,125	9,769	9,207	4,501	4,934	4,400	—	2,844	—	57,376
Aspen	XXXXX	1,372	2,198	—	—	—	—	—	—	—	—	—	3,570
Cottonwood	XXXXX	—	535	721	—	—	—	—	—	—	399	—	1,655
Total hardwoods	XXXXX	1,372	2,733	721	—	—	—	—	—	—	399	—	5,225
All species	4,137	5,693	9,871	6,846	9,769	9,207	4,501	4,934	4,400	—	3,243	62,601	

Table 37—Annual mortality of sawtimber (Scribner rule) on timberland outside National Forests by species and diameter class in southern Idaho, 1990.

Species	9.0-	11.0-	13.0-	15.0-	17.0-	19.0-	21.0-	23.0-	25.0-	27.0-	28.9	29.0+	All classes
	10.9	12.9	14.9	16.9	18.9	20.9	22.9	24.9	26.9	28.9	29.0+		
Douglas-fir	1,454	1,157	3,813	1,585	601	5,756	3,060	2,342	3,916	—	1,720	—	25,404
Ponderosa pine	514	819	—	609	600	—	—	—	—	—	—	—	2,542
Lodgepole pine	—	—	—	—	—	—	—	—	—	—	—	—	—
Whitebark pine	—	—	—	—	—	—	—	—	—	—	—	—	—
Limber pine	—	—	—	—	—	—	—	—	—	—	—	—	—
Western larch	463	—	—	—	—	—	—	—	—	—	—	—	463
Grand fir	—	869	2,094	—	2,299	—	946	2,049	—	—	—	—	8,257
Subalpine fir	561	461	—	3,048	—	2,259	—	—	—	—	812	—	7,141
Engelmann spruce	—	—	—	—	5,020	—	—	—	—	—	—	—	5,020
Total softwoods	2,992	3,306	5,907	5,242	8,520	8,015	4,006	4,391	3,916	—	2,532	48,827	
Aspen	XXXXX	1,124	1,831	—	—	—	—	—	—	—	—	—	2,955
Cottonwood	XXXXX	—	451	631	—	—	—	—	—	—	355	—	1,437
Total hardwoods	XXXXX	1,124	2,282	631	—	—	—	—	—	—	355	—	4,392
All species	2,992	4,430	8,189	5,873	8,520	8,015	4,006	4,391	3,916	—	2,887	53,219	

Table 38—Annual mortality of growing stock on timberland outside National Forests by species and cause of death in southern Idaho, 1990.

Species	Cause of death									Total
	Insects	Disease	Fire	Animal	Weather	Suppression	Unknown ¹	Logging		
<i>Thousand cubic feet</i>										
Douglas-fir	3,300	2,205	—	—	188	—	642	203	6,538	
Ponderosa pine	597	—	—	—	105	97	79	—	878	
Lodgepole pine	—	—	—	—	—	—	157	—	157	
Whitebark pine	—	—	—	—	—	—	—	—	—	
Limber pine	—	—	—	—	—	—	—	—	—	
Western larch	—	129	—	—	—	—	—	—	129	
Grand fir	1,451	—	—	—	573	—	—	—	2,024	
Subalpine fir	139	653	—	—	483	—	1,472	—	2,747	
Engelmann spruce	—	—	—	—	—	—	1,006	—	1,006	
Total softwoods	5,487	2,987	—	—	1,349	97	3,356	203	13,479	
Aspen	79	5,658	—	—	71	—	2,183	—	7,991	
Cottonwood	—	—	—	146	—	—	337	—	483	
Total hardwoods	79	5,658	—	146	71	—	2,520	—	8,474	
All species	5,566	8,645	—	146	1,420	97	5,876	203	21,953	

¹Because many destructive agents often attack trees in concert or in succession, it is often difficult to identify the actual causal agent. When the primary cause of death cannot be precisely determined, it is listed as unknown.

Table 39—Annual mortality of sawtimber (International 1/4-inch rule) on timberland outside National Forests by species and cause of death in southern Idaho, 1990.

Species	Cause of death									Total
	Insects	Disease	Fire	Animal	Weather	Suppression	Unknown	Logging		
<i>Thousand board feet</i>										
Douglas-fir	17,422	7,665	—	—	1,052	—	3,040	536	29,715	
Ponderosa pine	2,419	—	—	—	713	—	236	—	3,368	
Lodgepole pine	—	—	—	—	—	—	—	—	—	
Whitebark pine	—	—	—	—	—	—	—	—	—	
Limber pine	—	—	—	—	—	—	—	—	—	
Western larch	—	765	—	—	—	—	—	—	765	
Grand fir	6,931	—	—	—	2,584	—	—	—	9,515	
Subalpine fir	620	3,093	—	—	912	—	3,630	—	8,255	
Engelmann spruce	—	—	—	—	—	—	5,757	—	5,757	
Total softwoods	27,392	11,523	—	—	5,261	—	12,663	536	57,375	
Aspen	—	3,213	—	—	—	—	357	—	3,570	
Cottonwood	—	—	—	535	—	—	1,121	—	1,656	
Total hardwoods	—	3,213	—	535	—	—	1,478	—	5,226	
All species	27,392	14,736	—	535	5,261	—	14,141	536	62,601	

Table 40—Annual mortality of sawtimber (Scribner rule) on timberland outside National Forests by species and cause of death in southern Idaho, 1990.

Species	Cause of death									Total
	Insects	Disease	Fire	Animal	Weather	Suppression	Unknown	Logging		
----- Thousand board feet -----										
Douglas-fir	15,124	6,487	—	—	936	—	2,392	464	25,403	
Ponderosa pine	1,801	—	—	—	600	—	142	—	2,543	
Lodgepole pine	—	—	—	—	—	—	—	—	—	
Whitebark pine	—	—	—	—	—	—	—	—	—	
Limber pine	—	—	—	—	—	—	—	—	—	
Western larch	—	463	—	—	—	—	—	—	463	
Grand fir	6,071	—	—	—	2,186	—	—	—	8,257	
Subalpine fir	461	2,696	—	—	812	—	3,172	—	7,141	
Engelmann spruce	—	—	—	—	—	—	5,020	—	5,020	
Total softwoods	23,457	9,646	—	—	4,534	—	10,726	464	48,827	
Aspen	—	2,685	—	—	—	—	270	—	2,955	
Cottonwood	—	—	—	451	—	—	986	—	1,437	
Total hardwoods	—	2,685	—	451	—	—	1,256	—	4,392	
All species	23,457	12,331	—	451	4,534	—	11,982	464	53,219	

County Tables

Table 41—Area of timberland outside National Forests by county in southern Idaho, 1991.

County	Area
	Acres
Ada	5,477
Adams	96,952
Bannock	82,561
Bear Lake	17,056
Bingham	67,446
Blaine	35,541
Boise	158,211
Bonneville	37,804
Butte	18,632
Camas	14,837
Canyon	3,478
Caribou	85,817
Cassia	33,273
Clark	18,827
Custer	53,693
Elmore	25,272
Franklin	25,218
Fremont	39,414
Gem	3,871
Gooding	5,226
Jefferson	8,104
Jerome	3,012
Lemhi	74,371
Lincoln	6,056
Madison	14,782
Minidoka	3,791
Oneida	30,251
Owyhee	82,005
Payette	1,714
Power	42,647
Teton	17,550
Twin Falls	12,163
Valley	198,642
Washington	23,625
Total	1,347,319

Table 42—Net volume of growing stock and sawtimber on timberland outside National Forests by county in southern Idaho, 1991.

County	Growing stock		Sawtimber
	Thousand cubic feet	Thousand board feet, International 1/4-inch rule	Thousand board feet, Scribner rule
Ada	7,983	40,643	33,947
Adams	169,309	814,222	686,071
Bannock	111,112	359,142	302,591
Bear Lake	22,084	68,547	57,486
Bingham	69,905	210,296	178,813
Blaine	56,226	237,435	199,862
Boise	215,268	1,093,297	920,807
Bonneville	38,056	114,047	96,948
Butte	24,197	102,038	86,147
Camas	22,187	93,668	78,656
Canyon	5,059	25,798	21,547
Caribou	124,562	406,796	342,778
Cassia	43,267	175,488	148,606
Clark	19,926	68,813	58,540
Custer	73,669	319,015	266,402
Elmore	37,803	177,269	152,100
Franklin	33,432	104,347	87,580
Fremont	44,481	141,496	120,220
Gem	5,894	30,230	25,961
Gooding	6,337	25,774	21,916
Jefferson	6,487	22,551	19,289
Jerome	1,929	7,410	6,371
Lemhi	66,733	251,723	210,079
Lincoln	3,992	15,411	13,244
Madison	16,584	54,056	45,922
Minidoka	2,427	9,326	8,018
Oneida	42,404	153,195	130,201
Owyhee	105,961	481,844	409,827
Payette	2,381	11,741	9,916
Power	47,192	159,376	135,182
Teton	19,826	58,835	50,005
Twin Falls	11,277	45,249	38,474
Valley	331,341	1,649,809	1,419,717
Washington	37,794	197,523	167,643
Total	1,827,085	7,726,410	6,550,866

Table 43—Net annual growth of growing stock and sawtimber on timberland outside National Forests by county in southern Idaho, 1990.

County	Growing stock		Sawtimber
	Thousand cubic feet	Thousand board feet, International 1/4-inch rule	Thousand board feet, Scribner rule
Ada	227	1,462	1,267
Adams	6,278	34,351	29,531
Bannock	989	10,790	9,491
Bear Lake	276	1,890	1,689
Bingham	623	4,791	4,324
Blaine	1,041	2,658	2,500
Boise	4,291	30,610	26,181
Bonneville	320	2,688	2,421
Butte	382	2,967	2,609
Camas	391	1,157	1,077
Canyon	133	856	738
Caribou	1,344	10,768	9,512
Cassia	404	9,425	8,148
Clark	319	2,300	2,033
Custer	1,326	4,781	4,358
Elmore	1,004	6,917	6,228
Franklin	364	3,128	2,775
Fremont	614	4,000	3,572
Gem	167	1,081	967
Gooding	110	192	189
Jefferson	70	380	344
Jerome	24	41	40
Lemhi	1,631	10,240	8,943
Lincoln	49	137	128
Madison	246	1,695	1,506
Minidoka	30	52	51
Oneida	311	5,107	4,420
Owyhee	2,022	12,052	10,766
Payette	80	548	486
Power	158	5,315	4,616
Teton	209	1,177	1,074
Twin Falls	156	741	669
Valley	5,717	35,841	31,282
Washington	971	6,098	5,521
Total	32,277	216,236	189,456

Table 44—Annual mortality of growing stock and sawtimber on timberland outside National Forests by county in southern Idaho, 1990.

County	Growing stock		Sawtimber
	Thousand cubic feet	Thousand board feet, International 1/4-inch rule	Thousand board feet, Scribner rule
Ada	33	156	130
Adams	1,010	4,613	3,739
Bannock	2,181	3,022	2,652
Bear Lake	365	406	354
Bingham	1,366	2,877	2,426
Blaine	643	2,464	2,052
Boise	2,172	9,621	8,117
Bonneville	788	1,556	1,311
Butte	261	759	638
Camas	260	887	737
Canyon	29	138	117
Caribou	2,126	3,725	3,269
Cassia	751	727	611
Clark	283	863	725
Custer	595	2,278	1,890
Elmore	157	573	456
Franklin	606	660	579
Fremont	684	1,918	1,611
Gem	27	107	90
Gooding	92	346	291
Jefferson	118	308	262
Jerome	33	110	94
Lemhi	87	214	184
Lincoln	67	218	188
Madison	249	713	598
Minidoka	41	138	119
Oneida	818	1,738	1,524
Owyhee	680	2,213	1,859
Payette	5	22	17
Power	1,219	1,658	1,453
Teton	338	849	716
Twin Falls	174	504	428
Valley	3,538	15,593	13,552
Washington	157	627	430
Total	21,953	62,601	53,219

Miscellaneous Tables

Table 45—Area of timberland outside National Forests by burn history and owner group in southern Idaho, 1991.

Burn history	Owner group					Total
	State	Other	Total other public	Forest industry	Nonindustrial private	
Acres						
None	171,840	221,877	393,717	63,891	359,997	817,605
Burned past year	—	—	—	—	5,932	5,932
Burned past 1-3 years	—	—	—	—	—	—
Burned past 3-10 years	34,592	25,104	59,696	25,123	16,429	101,248
Burned beyond 10 years	67,186	114,707	181,893	84,392	156,249	422,534
Total	273,618	361,688	635,306	173,406	538,607	1,347,319

Table 46—Area of timberland outside National Forests by cutting history and owner group in southern Idaho, 1991.

Cutting history	Owner group					Total
	State	Other	Total other public	Forest industry	Nonindustrial private	
Acres						
None	140,587	265,448	406,035	9,360	299,312	714,707
Cut past year	—	—	—	4,324	5,932	10,256
Cut past 1-3 years	10,264	2,954	13,218	25,095	36,480	74,793
Cut past 3-10 years	55,212	34,974	90,186	59,781	84,545	234,512
Cut beyond 10 years	67,555	58,312	125,867	74,846	112,338	313,051
Total	273,618	361,688	635,306	173,406	538,607	1,347,319

Table 47—Area of timberland outside National Forests by distance to road and owner group in southern Idaho, 1991.

Distance to road	Owner group					Total	
	Other public		Total other public	Forest industry	Nonindustrial private		
	State	Other					
-Acres-							
Less than ½ mile	135,085	121,027	256,112	105,880	226,141	588,133	
½ to 1 mile	52,041	103,510	155,551	45,810	120,327	321,688	
1-3 miles	52,558	76,165	128,723	13,204	154,039	295,966	
3-5 miles	19,762	17,592	37,354	8,512	11,333	57,199	
More than 5 miles	14,172	43,394	57,566	—	26,767	84,333	
Total	273,618	361,688	635,306	173,406	538,607	1,347,319	

Table 48—Net volume of growing stock on timberland outside National Forests by distance to road and owner group in southern Idaho, 1991.

Distance to road	Owner group					Total	
	Other public		Total other public	Forest industry	Nonindustrial private		
	State	Other					
-Thousand cubic feet-							
Less than ½ mile	240,336	133,029	373,365	116,258	338,972	828,595	
½ to 1 mile	86,141	121,444	207,585	73,637	130,456	411,678	
1-3 miles	71,880	97,086	168,966	14,077	196,085	379,128	
3-5 miles	38,826	34,824	73,650	18,875	24,773	117,298	
More than 5 miles	18,285	70,618	88,903	—	1,483	90,386	
Total	455,468	457,001	912,469	222,847	691,769	1,827,085	

Marketing Zone Tables

Table 49—Area of timberland outside National Forests by marketing zone and owner group in southern Idaho, 1991.

Marketing zone	Owner group					Total
	State	Other	Total other public	Forest industry	Nonindustrial private	
-Acres-						
Southwest	167,823	84,747	252,570	173,406	173,271	599,247
Southeast	105,794	276,942	382,736	—	365,336	748,072
Total	273,617	361,689	635,306	173,406	538,607	1,347,319

Table 50—Net volume of growing stock and sawtimber on timberland outside National Forests by marketing zone and owner group in southern Idaho, 1991.

Marketing zone	Owner group					Total	
	State	Other	Total other public	Forest industry	Nonindustrial private		
Growing stock							
-Thousand cubic feet-							
Southwest	306,543	117,260	423,803	222,847	272,143	918,793	
Southeast	148,925	339,741	488,666	—	419,626	908,292	
Total	455,468	457,001	912,469	222,847	691,769	1,827,085	
Sawtimber							
-Thousand board feet, International 1/4-inch rule-							
Southwest	1,556,182	554,320	2,110,502	965,522	1,446,352	4,522,376	
Southeast	555,013	1,327,462	1,882,475	—	1,321,559	3,204,034	
Total	2,111,195	1,881,782	3,992,977	965,522	2,767,911	7,726,410	
Sawtimber							
-Thousand board feet, Scribner rule-							
Southwest	1,341,430	472,270	1,813,700	809,742	1,224,095	3,847,537	
Southeast	470,452	1,118,775	1,589,227	—	1,114,102	2,703,329	
Total	1,811,882	1,591,045	3,402,927	809,742	2,338,197	6,550,866	

Table 51—Net annual growth of growing stock and sawtimber on timberland outside National Forests by marketing zone and owner group in southern Idaho, 1990.

Marketing zone	Owner group					Total	
	State	Other	Total other public	Forest industry	Nonindustrial private		
Growing stock							
<i>-Thousand cubic feet</i>							
Southwest	3,635	2,095	5,730	7,699	7,461	20,890	
Southeast	1,938	4,961	6,899	—	4,488	11,387	
Total	5,573	7,056	12,629	7,699	11,949	32,277	
Sawtimber							
<i>-Thousand board feet, International 1/4-inch rule</i>							
Southwest	26,581	13,241	39,822	43,302	46,692	129,816	
Southeast	18,384	45,736	64,120	—	22,300	86,420	
Total	44,965	58,977	103,942	43,302	68,992	216,236	
Sawtimber							
<i>-Thousand board feet, Scribner rule</i>							
Southwest	23,694	11,814	35,508	36,434	41,025	112,967	
Southeast	16,006	39,987	55,993	—	20,496	76,489	
Total	39,700	51,801	91,501	36,434	61,521	189,456	

Table 52—Annual mortality of growing stock and sawtimber on timberland outside National Forests by marketing zone and owner group in southern Idaho, 1990.

Marketing zone	Owner group					Total	
	State	Other	Total other public	Forest industry	Nonindustrial private		
Growing stock							
<i>-Thousand cubic feet</i>							
Southwest	3,865	1,079	4,944	1,981	883	7,808	
Southeast	2,158	3,645	5,803	—	8,342	14,145	
Total	6,023	4,724	10,747	1,981	9,225	21,953	
Sawtimber							
<i>-Thousand board feet, International 1/4-inch rule</i>							
Southwest	19,049	4,516	23,565	6,851	3,249	33,665	
Southeast	6,545	9,924	16,469	—	12,467	28,936	
Total	25,594	14,440	40,034	6,851	15,716	62,601	
Sawtimber							
<i>-Thousand board feet, Scribner rule</i>							
Southwest	16,455	3,816	20,271	5,722	2,513	28,506	
Southeast	5,649	8,567	14,216	—	10,497	24,713	
Total	22,104	12,383	34,487	5,722	13,010	53,219	

Woodland Tables

Table 53—Area of woodland outside National Forests by forest type and owner group in southern Idaho, 1991.

Forest type	Owner group					Total
	Other public		Total other public	Forest industry	Nonindustrial private	
	State	Other				-Acres-
<hr/>						
Pinyon-juniper	59,173	264,264	323,437	—	122,237	445,674
Western juniper	22,298	93,803	116,101	—	28,026	144,127
Other woodland hardwoods	6,804	37,622	44,426	14	18,015	62,455
All types	88,275	395,689	483,964	14	168,278	652,256

Table 54—Net volume on woodland outside National Forests by forest type and owner group in southern Idaho, 1991.

Forest type	Owner group					Total
	Other public		Total other public	Forest industry	Nonindustrial private	
	State	Other				-Thousand cubic feet-
<hr/>						
Pinyon-juniper	36,069	143,541	179,610	—	50,439	230,049
Western juniper	15,921	67,931	83,852	—	18,119	101,971
Other woodland hardwoods	2,612	14,357	16,969	13	4,166	21,148
All types	54,602	225,829	280,431	13	72,724	353,168

Table 55—Net volume on woodland outside National Forests by species and owner group in southern Idaho, 1991.

Species	Owner group					Total
	State	Other	Total other public	Forest industry	Nonindustrial private	
- Thousand cubic feet -						
Douglas-fir	480	763	1,243	—	1,226	2,469
Juniper	10,806	54,101	64,907	—	22,541	87,448
Singleleaf pinyon	636	3,068	3,704	—	3,522	7,226
Maple	2	13	15	—	2,153	2,168
Curlyleaf mountain mahogany	3,599	17,001	20,600	13	6,578	27,191
Western juniper	39,079	150,883	189,962	—	36,704	226,666
All species	54,602	225,829	280,431	13	72,724	353,168

Table 56—Net annual growth on woodland outside National Forests by forest type and owner group in southern Idaho, 1990.

Forest type	Owner group					Total
	State	Other	Total other public	Forest industry	Nonindustrial private	
- Thousand cubic feet -						
Pinyon-juniper	266	1,035	1,301	—	543	1,844
Western juniper	95	388	483	—	105	588
Other woodland hardwoods	32	188	220	— ¹	82	302
All types	393	1,611	2,004	— ¹	730	2,734

¹Less than 500 cubic feet.

Table 57—Net annual growth on woodland outside National Forests by species and owner group in southern Idaho, 1990.

Species	Owner group					Total
	State	Other	Total other public	Forest industry	Nonindustrial private	
- Thousand cubic feet -						
Douglas-fir	19	30	49	—	11	60
Juniper	96	486	582	—	242	824
Singleleaf pinyon	9	44	53	—	48	101
Maple	2	13	15	—	127	142
Curlyleaf mountain mahogany	46	223	269	— ¹	107	376
Western juniper	221	815	1,036	—	195	1,231
All species	393	1,611	2,004	— ¹	730	2,734

¹Less than 500 cubic feet.

Table 58—Annual mortality on woodland outside National Forests by forest type and owner group in southern Idaho, 1990.

Forest type	Owner group					Total	
	Other public		Total other public	Forest industry	Nonindustrial private		
	State	Other					
<i>- Thousand cubic feet -</i>							
Pinyon-juniper	3	17	20	—	—	20	
Western juniper	—	—	—	—	—	—	
Other woodland hardwoods	—	—	—	—	—	—	
All types	3	17	20	—	—	20	

Table 59—Annual mortality on woodland outside National Forests by species and owner group in southern Idaho, 1990.

Species	Owner group					Total	
	Other public		Total other public	Forest industry	Nonindustrial private		
	State	Other					
<i>- Thousand cubic feet -</i>							
Douglas-fir	—	—	—	—	—	—	
Juniper	—	—	—	—	—	—	
Singleleaf pinyon	3	17	20	—	—	20	
Maple	—	—	—	—	—	—	
Curlyleaf mountain mahogany	—	—	—	—	—	—	
Western juniper	—	—	—	—	—	—	
All species	3	17	20	—	—	20	



1022443917

Chojnacky, David C. 1995. Southern Idaho's forest land outside National Forests, 1991. Resour. Bull. INT-RB-82. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 57 p.

Presents area, volume, growth, and mortality for timberland and woodland outside National Forests in southern Idaho.

Keywords: volume, growth, mortality, diameter, forest survey, inventory, two-phase sampling, double sampling



The Intermountain Research Station provides scientific knowledge and technology to improve management, protection, and use of the forests and rangelands of the Intermountain West. Research is designed to meet the needs of National Forest managers, Federal and State agencies, industry, academic institutions, public and private organizations, and individuals. Results of research are made available through publications, symposia, workshops, training sessions, and personal contacts.

The Intermountain Research Station territory includes Montana, Idaho, Utah, Nevada, and western Wyoming. Eighty-five percent of the lands in the Station area, about 231 million acres, are classified as forest or rangeland. They include grasslands, deserts, shrublands, alpine areas, and forests. They provide fiber for forest industries, minerals and fossil fuels for energy and industrial development, water for domestic and industrial consumption, forage for livestock and wildlife, and recreation opportunities for millions of visitors.

Several Station units conduct research in additional western States, or have missions that are national or international in scope.

Station laboratories are located in:

Boise, Idaho

Bozeman, Montana (in cooperation with Montana State University)

Logan, Utah (in cooperation with Utah State University)

Missoula, Montana (in cooperation with the University of Montana)

Moscow, Idaho (in cooperation with the University of Idaho)

Ogden, Utah

Provo, Utah (in cooperation with Brigham Young University)

Reno, Nevada (in cooperation with the University of Nevada)

The policy of the United States Department of Agriculture Forest Service prohibits discrimination on the basis of race, color, national origin, age, religion, sex, or disability, familial status, or political affiliation. Persons believing they have been discriminated against in any Forest Service related activity should write to: Chief, Forest Service, USDA, P.O. Box 96090, Washington, DC 20090-6090.